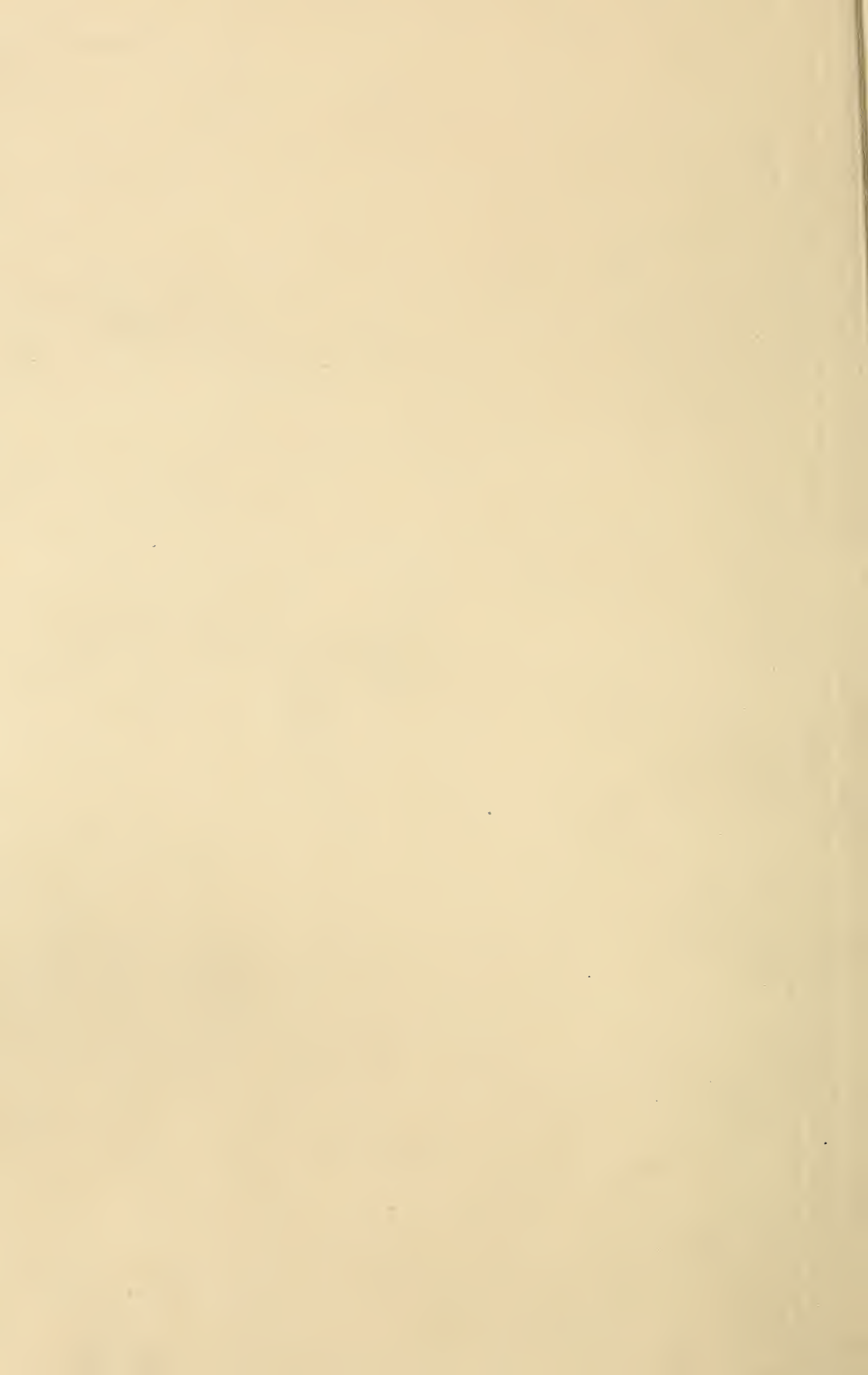


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# GLEANINGS IN BEE CULTURE

A JOURNAL DEVOTED  
TO BEES  
AND HONEY  
AND HOME  
INTERESTS.

ILLUSTRATED  
SEMI-MONTHLY

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No. 19.



I DON'T OBJECT to a green cover for GLEANINGS, but please paint mine a shade lighter next time.

GLAD to see Jimmie Green on deck again, p. 728. He has the right kind of inside gear for a bee-keeper, and it was naughty of him to turn the cold shoulder on bees for the sake of bicycles and such things.

THE BELGIAN-HARE fever struck me, but I could hardly see where I could find time to look after another industry, at least till I had more leisure. I've now given it up altogether. According to what I read, Belgian-hare meat can be produced so cheaply, and so many are going into the business, that soon I can buy it cheaper than beef without the trouble of raising it.

FORMERLY it was supposed that when eggs were found in a queenless hive, a single worker was in the laying business, and it is still quite common to read of the presence of a laying worker. If I am not mistaken microscopical examinations across the water showed that where laying workers were present a large number, if not the majority, of the workers had eggs in their ovaries.

"ALL BEE-KEEPERS should understand that it is *bees* that gather honey or nectar, not the number of hives which they have standing in the yard," p. 733. Pound away on that, Bro. Doolittle; you'll get it into the heads of some beginners; but a whole lot of them will persist in trying to winter a lot of weaklings without understanding that they would have more *bees* next June if they would lessen the present number of occupied hives.

TALLY ONE for Iowa. There must be a lot of good people there, even to talk of such a man as our Eugene for Congress. [But Eugene is so modest I am afraid he will not lift a finger to help himself; and a politician nowadays—yes, even a statesman—often has to get out and hustle for himself. I hope our

'Gene-ial Manager will go to Congress. We bee-keepers only wish we could all vote for him, for we would send him with a good rousing majority.—ED.]

I'VE MORE FAITH than formerly in killing queen-cells to prevent swarming. A number of colonies did not swarm this summer after having queen-cells killed once, twice, or three times. Some had swarming delayed two to four weeks by the killing of queen-cells. But generally only eggs were in the cells where destroying them made any difference. If an egg was destroyed in a cell, and a week later a queen-cell was found with a grub in it, it was not much use to make any effort to thwart them.

AFTER READING what you have lately said, Mr. Editor, I'm wondering whether you might not regard a little more favorably that glossometer project on page 731, 1898. No need of an inside bottom; just a plain bottom with the wire cloth at a slight angle; then the bee-keeper could level the dish till the liquid coincided with the wire cloth. I'd like such a dish 17 inches long. [A queen-cage filled with candy, the same as is spoken of on page 734 of our last issue, is about as good a glossometer as can be devised. Your plan may be all right; but it appears to me it would not give quite as accurate a measurement of the tongue as the simple queen-cage which can be fixed up in two minutes of time. If yours is a better plan, fix one up and tell us how it works.—ED.]

SOMETIMES there is trouble with clipped queens and hives close together. I've had a few cases in which a colony swarmed and the queen entered a neighboring queenless colony, where she was kindly received. [You do not explain, doctor, that your hives are in pairs, the individual hives of each pair being some four or five inches apart; is it not possible that you would, therefore, cause more confusion among queens, either virgin or unclipped, than if you had the hives otherwise arranged? In a queen-rearing apiary, if hives are in pairs each pair must be quite dissimilar in appearance from the pair or pairs next to it, either because of shrubbery or because of



the arrangement of the hives, or because one hive of a pair is different from the other, and strikingly different from the hive located in the same position in the next pair.—ED.]

STRANGE how some foolish idea will go the rounds as if there was something to it. There's that idea of Rambler's. Now, is it possible that bee-keepers in general are so weak in the upper story that, when looking for a queen, they can't remember what they're looking for without saying, "Queen, queen," over and over again? No, sir, Rambler; when I look for a queen I'm after that queen, and nothing short of a call to dinner will call my attention to anything else. If I were like some other people I know of it might be different. Even saying "Queen, queen," wouldn't do them any good. I can imagine Rambler, frame in hand, softly crooning to himself,

"Queen, queen, queen,  
O queen of my heart,  
How I wish you were here!"

while the queen he ought to be wishing for was walking across the comb right before his eyes.

MISERY likes company, and here's something for those who have not been very successful in rearing young queens. May 29 I formed a nucleus and gave it a virgin. I saw her there nine days later, then she turned up missing. I gave in succession five more virgins and two cells, which I think were kindly received in most if not all cases, and brood was given from time to time so that the nucleus was unusually strong, but I never got a queen to laying in that pesky nucleus till Sept. 12. If any one has done worse than that, please rise. [This is a record-breaking case, sure. I should like to know more about that colony. Is it not possible that it had a fashion of making way with its queens? Possibly they did not lay soon enough to suit their fancies. After using up four or five virgins I should have felt like treating this colony as I would a colony of laying workers, scattering their brood and bees in four or five strong colonies, leaving one comb to catch the few returning bees. Then I do not know but I should feel like taking those bees and brimstoning them. It used to be my practice, when I was working every day in the apiary, to take an "obstreperous" colony or nucleus, and treat it after this fashion.—ED.]

SOME NEW FREAK is always coming up among the bees. Lately I took a comb out of a nucleus, and found it regularly supplied with eggs except a cluster of cells at one end, each containing five to ten eggs. "Laying workers," thought I. But all were worker-cells, and directly I spied a fine-looking queen. A few days later it was the same thing. I strengthened the nucleus, giving the queen more room to lay, and after that there was only one egg in a cell. I have often known a queen to lay two or three eggs in a cell here and there, but never before have I seen one dump all her extra eggs in one little spot. [Yes, we very often have queens that will commence to lay irregularly at first, and after a while will get down to business. It is

not an uncommon thing for one who receives an imported queen to report that she is "no good" because she scatters her eggs and puts one or two in a cell; but we always advise waiting a little, and giving her a further trial. So far as I can remember, these queens have in every case, with perhaps one exception, turned out all right.—ED.]

AUGUST 18 I took a queen from a nucleus and gave it a caged queen-cell due to hatch Aug. 22. Aug. 31 I gave it a frame of young brood. Sept. 18 I found eggs and brood, and on the same comb, not two inches apart, two queens, one a virgin by her looks. The case looks a little like this: When the frame of brood was given Aug. 31, the bees started a queen-cell as a precautionary measure, because their queen was not yet laying, and then allowed both to continue. But did you ever know of such an exception before? Now suppose these had been black queens, and I had sent to a queen-breeder for an Italian, which I introduced after killing one of the blacks without seeing the other. The Italian would be killed, and three weeks later I would find only blacks hatching, and would feel sure a black queen had been sent me. [This can and probably does explain how, in one way, a good tested queen turns out to be no better than a common black. Lately we have been clipping our best queens, and only this week we had a case where a customer reported that an imported we had sent him was nothing but a hybrid. We wrote back, and asked if the queen now in the hive had a clipped wing. We have not yet heard from him, but are morally certain that one of two things is true—either that he does not know how to distinguish hybrids from pure Italians, or that the queen has got supplanted in the manner you speak of. It has very often happened, when we have ferreted the matter clear down, that there has been an exchange of queens. The customer was entirely honest, and supposed that we had, of course, made some mistake.—ED.]



The bluejay's angry shriek, the withering leaves,  
Foretell stern Winter's blast;  
The summer scarcely seems to come  
Before—"the summer's past."



#### AMERICAN BEE-KEEPER.

The issue for September contains a good view of the apiary of Mr. H. L. Jones, Goodna, Australia. Better than I can do it myself, the editor describes the phenomenal success of Mr. Jones as follows:

It is interesting to note the progress of our industry around the world; and the case of Mr. Jones corroborates the fact already established, that, in the hands of the *right man*, very limited means and a small start frequently outgrow and surpass the more pretentious business which, though having abundant capital, has not the skill and natural adaptability neces-

sary to success. Mr. Jones' start in bee-keeping consisted of a single colony captured in the woods, in 1880. Owing to limited means the care and increase of his stock was carried on for several years without so much as a smoker, honey-knife, or extractor. The season of 1884 brought him a crop of honey averaging over 228 pounds to the hive from his nine stocks, together with an increase to 35 colonies.

He says further :

Had I known then as much about the production of honey as I do now, I should certainly have been richer by some thousands of pounds. Even to-day, with all the low-priced literature upon the subject of bees, many are content to grope along in ignorance without it.

Mr. Fr. Greiner contributes an interesting article relative to the various characteristics of blacks, Carniolans, and Italians. I quote one paragraph :

I will now name two points wherein the Italians excel the other two races (blacks and Carniolans). First, they generally store much more pollen in their combs; second, they are apt to gather more propolis, both being undesirable properties, considered from the comb-honey producer's standpoint.]

As to capping honey, Carniolans stand at the head of the list, and will send out the most swarms; Italians will swarm the least. "If left undisturbed," the writer says, "Italian bees will fill their brood-nest with honey to such an extent as to prevent the rearing of an excess of brood. This is probably the reason why they do not enter the section-cases as readily as the blacks and Carniolans. On this account I would not hesitate to adopt generally the Italian bee." In capping, Mr. Greiner says Italians fall away behind. While circumstances and locality might at times modify the results obtained by the use of these three kinds of bees, there is no doubt that Mr. Greiner is correct in most of his conclusions. As a fitting wind-up to this matter I would refer the reader to the article of S. P. Culley, in this issue. He suggests getting a bee containing the good qualities of all these strains and others.

The following, from the *Syracuse Post-Standard* of Sept. 5, is interesting reading :

An enterprising young woman who will enter Syracuse University this fall is Miss Mary Mills, from Fairmount. She will pay her own college expenses, and she is to do it by her bee-keeping. For two years since she was graduated from the High School she has been in the business at her father's farm, two miles outside of the city, and she has made it pay. At the State Fair last week she took a first prize for her bees and several prizes for her honey.

Miss Mills has found that this kind of work brings her in more money than school-teaching or some other things might. Her eighty colonies of bees she takes entire charge of. They are in a vineyard, this site being chosen so that, when they swarm, they will be likely to alight on the vines, where they can be easily captured. When they take to a tree she gets a ladder and goes after them just the same. She is dressed so that she can. The costume that she wears in her work is built specially for it. It consists of bloomers and a short skirt of denim. Brown is the color chosen, because, as Miss Mills says, bee-keepers have observed that the bees like this shade, and are much more amiable inclined toward people who wear it when about them. On her head she wears a regular farmer's straw hat. It is tied around by a black silk veil tucked snugly into her neck all around for protection, because if the bees should get down her collar there would be trouble. On her hands she sometimes wears kid gloves, but this she says is more to keep her fingers soft and pliable for playing the piano than because she is afraid of the bees. They seldom sting her, anyway, and she often works among them with bare hands.

A person's safety among the bees, she says, depends much upon his or her temperament. One must be perfectly calm and self-possessed. The slightest nervousness they notice in a moment, and even a twitching of a muscle of the face will attract their attention and excite their animosity.

The hives must frequently be fitted out with frames and boxes in which the honey is stored. All the carpenter work necessary in putting these together Miss Mills does herself, and she can handle a hammer easily. Much of her honey she sells in neat little pound boxes. More of it she sells as extracted honey, which is used as a syrup. The extracting is a special department of her work. The honey is taken from the hives in frames, not boxes, and these are placed in a machine which throws the honey out by means of centrifugal force.

Sweet-clover and alfalfa-clover and basswood blossoms are relied upon to furnish the best honey. Buckwheat blossoms furnish a darker variety, which is not so much in demand. She subscribes regularly to a magazine devoted to bee culture. Her bees take about three days a week of her time.

The following was meant by Dr. Miller for a Straw in the previous issue; but as it belongs more particularly in this department I concluded to use it here :

Will Stenog please rise and explain the concealed joke on Bro. York that he has in asking what kind of clover it was where "one sweet clover plant" was set to each hive? If he means that in this case "sweet clover" becomes a compound adjective, and must be written "sweet-clover," Stenog better commence nearer home before throwing stones at the Chicago fellow.

Yes, I simply meant that "sweet-clover plant" indicates a plant from sweet clover, and that "sweet clover plant" means any clover plant that is sweet. The two meanings are exactly opposite, as all will agree. But I do object to the idea that I was "throwing stones" at anybody, or even saying any thing unkind, much less to the writer, whose name I did not even notice. But he noticed it, and in apparent indignation he orders GLEANINGS discontinued. I have explained the matter to him, and hope all will be pleasant in the future. Dr. Miller says, very rightly, the "drive," if any, was on Mr. York, and not on his correspondent. But isn't life too short to be spent in taking umbrage at such trifles? and perhaps the omission of the hyphen was a trifle too. Although I have always studiously avoided the hurting of any man's feelings in any thing I have written, I see I must be still more careful.



#### HONEY VINEGAR.

How to Make a First-class Article for Market.

BY MRS. A. J. BARBER.

I have had so many inquiries about making vinegar lately, that, being very busy, I can not answer by letter, so I will write to GLEANINGS for all. To give short directions, I will say :

Use about one pint of honey to the gallon of water (you will soon be able to tell by the taste when it is sweet enough). Put it into a



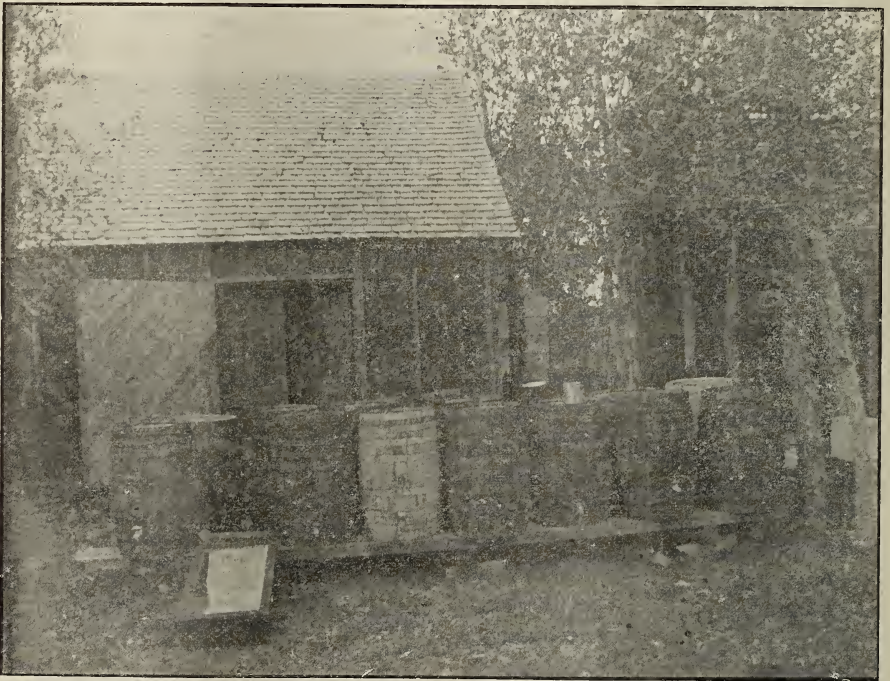
keg or barrel with a good tight head, and leave a hole not larger than one inch for ventilation. Keep it in a warm place and put in some good vinegar or yeast to start it. After it gets to working, draw off a pailful now and then and pour it back; or if you have more than one keg, pour from one to another. It helps new vinegar to put old vinegar into it; but it spoils the keeping qualities of the old vinegar to put fresh vinegar into it.

We save all the washings from the extractor, tank, strainers, and cappings, for vinegar. We wash the cappings by pouring warm water through them again and again, until about all the honey is out of them. They are then rinsed by pouring a pail or two of cold water through, when they are in fine shape for the wax-extractor. The water is all put into the

salable vinegar. Next spring the vinegar in them will be drawn off and put into clean barrels to keep until sold. When we get an order for a barrel of vinegar we draw off again and put into a clean barrel. By this time there is but little "mother" forming, as the vinegar is ripe and will keep indefinitely.

We have a house specially for our vinegar. It is a double-wall frame with a ten-inch space between walls, packed with sawdust. The ceiling is covered with several inches of sawdust, and the vinegar keeps nicely all winter. We put the barrels into the house in November, and take them out in April. They stand in the sun all summer.

When we take them out we find which barrel has the best vinegar. The vinegar is drawn off and put into a clean barrel. The head is



MAKING HONEY VINEGAR

vinegar-barrels. It took us two years to get really good vinegar from the start in new barrels. Now that we have our old sour barrels and good vinegar to start with we can get good vinegar this season from last year's washings. For the last four years we have made from four to twelve barrels each year. We have twelve for market this year, and now at the last of July four new ones coming on for next year. We expect to make several more before the season closes. Each barrel should be cleaned every other year. Unless this is done the "mother" will begin to decay and break up, making the vinegar flat in taste and muddy in color. The barrels that we started vinegar in this spring had the sweet water put in with the remnant of last year's

then taken out of the one just emptied, and it is well scrubbed with water and a stiff broom. When clean it is reheaded, and the contents of the next best barrel drawn off and put into it. Thus the barrels are cleaned and the vinegar put in shape for market. We have a long low bench or platform for the barrels, where they stand in two rows. The first barrel drawn off is placed at the east end of the south row. That is No. 1, as it is the first to be ready to sell from. The next barrel drawn off being next best is placed next to No. 1 on the row, and is No. 2. So we go on till we get to No. 12. When we sell a few gallons from No. 1 we draw from No. 2 and replenish it; draw from No. 3 and fill up No. 2; from No. 4 and fill No. 3, until we have gone through and left



the empty place in No. 12. When No. 12 is empty, or nearly so, we fill it with sweetened water again, and it makes No. 1 for next year. Nothing helps so much to make vinegar clear and sparkling and sharp as the working from one barrel to another. It seems to act like kneading on dough. It sounds, to tell of it, like a lot of work; but, really, when one has good faucets in all the barrels it doesn't take long to run a few pailfuls from one to another of the whole lot. I try to get at mine once a month, and oftener when we sell a large quantity.

Our neighbors come to get honey vinegar in preference to the cider vinegar at the stores. We have kept some in the stores, but have never had enough to supply them yet. We use all kinds of refuse or waste honey, such as broken combs and dark unfinished sections, and this year we had about 300 pounds of dark strong honey that came from weeds before alfalfa bloom. That will go into the vinegar next year if I don't need it to feed my bees in the spring.

I believe the secret of success in the bee-business lies in looking after every part of the business, and saving every thing produced; and what can not be marketed as first-class honey should be turned into first-class vinegar.

I have been asked if honey vinegar will keep pickles. I have put up quantities of them in the last three years, and have never lost any, but have sold a great many, both of whole and mixed pickles. We are using mixed pickles now that were put up last August, and they are as firm and brittle as they ever were. If the vinegar is old enough, and has been properly handled, it is of the very best quality for pickling or any thing else that vinegar is used for.

Mancos, Col., Aug., 1900.

#### ARE BELGIAN HARES A MENACE?

Interesting Examples of the "Survival of the Fittest;" how many Times a Doe may Breed in a Season.

BY A. J. COOK.

I am asked if there is not danger that the Belgian hare may gain its liberty in the United States, and become as great a pest as did the English rabbit when introduced into Australia. It will be remembered that, soon after the English rabbit was taken to Australia, it became so common as almost to threaten the very existence of profitable agriculture. So serious seemed the impending danger that a very large reward—I think it was \$100,000—was offered for some cheap and practical method whereby the new comers might be exterminated. The experience of introducing the mongoose into Jamaica was another case in point. Introduced into the island to eradicate the cane-rat, it not only did this but also destroyed poultry, and even changed its habit and commenced depredating upon the fruit, so that the Jamaicans soon found they had caught a Tartar. They, like the people of Australia, would now gladly be rid of what

they had introduced in the hopes of receiving large benefit. Australia is very similar to California in its general character, which should lead us to greater caution. In the East, the thickets and brushwood are less abundant, and we should have reason for less fear. Again, Australia has a lower type of animal life. It is back-woodsy, so to speak, in the way of development, and we should rightly expect that it would be less able to hold in rightful check any animal from America or the Orient, and especially an animal so prolific as the rabbit. Jamaica is a small island, and so we should have much reason to expect danger there as has been experienced with the mongoose.

In California, Colorado, and other sections of our country where rocks and chaparral make a hiding-place for hare and rabbit, there have been developed along with rabbit and hare the coyote, fox, and wild cat, which are ever working to preserve the balance of nature, so that neither rodent nor carnivore will gain the upper hand. These hungry carnivores have developed a cunning craftiness which compels an equal cunning, and a peculiar cunning withal, in rabbit and hare, if they would resist extermination. Thus the jack-rabbit and cotton tail of our western plains, mountains, and California coast, are peculiarly fleet, are possessed of very acute sense organs, and are exceedingly alert in all that protects them against their rapacious enemies. Indeed, in Northern California there are what are called the wire-fence rabbits. They have taken this name from the habit they have of dodging from one side of the fence to the other to escape their hawk enemies. I hope that all the readers of GLEANINGS have or will read that most fascinating book, "Wild Animals I have Known." It has rare merit, and may well be numbered among the classics. The story of Molly Cotton-tail, as given in that book, is very true to life, and very little if any exaggerated. It plainly shows how hard a time a new comer will have to endure the struggle for life, which is ever enforced by the hard conditions of all our Western regions. But we are not confined to theory alone in forming a judgment in this matter. The more alert and brisk English rabbit has been repeatedly brought to California, and has often escaped from domestication. In every case it has been quickly exterminated. It did not find the simple easy conditions of Australia to combat. Indeed, the struggle in its new home is much more severe than that of the British Isles, and hence its inability to brave the perils of its new environment among us.

The Belgian rabbit, or so-called hare, would ill compete with even its British relative in any such trying conflict. It has been bred carefully, and, as in case of all domesticated animals, would lose much of the sagacity and alertness which the harder condition of wild life ever tends to develop. In a recent article in the *American Bee Journal* I referred to these Belgian rabbits as inactive and loggy. I have been criticised for this assertion. True, as we see the young rabbits frisking in their small pent-up quarters we might well regard

them as quick, fleet, and full of energy. But on the race-course, in the lead of coyote or fox, there could be but one conclusion. It stands to reason that these animals, fondled and carefully tended in the small limits of the rabbitry, must lack acumen, fleetness, and vigor. They are the short-horns, if we may use the word, among the bunny tribes. As has proved true with the English rabbits, so it would certainly be even more true that the Belgians that escape from domestication would mean speedy death and extermination. We may be perfectly sure that they would fall much behind even the English rabbit in power to resist the hard conditions which meet all such life from Colorado to the Pacific Coast. I feel, then, that, while we should exercise the utmost caution in introducing new species of bird or mammal into every part of our country, we run no risk whatever in bringing in these favorites of the fancier, the Belgian rabbits. It is probable that very few if any will escape from the breeder. We should almost as soon expect the short-horns and Herefords of the western plains to escape into the wilds of upland and mountain, and would be hardly less surprised if the latter should develop into disturbing factors than we should to learn that these handsome rabbits had done so.

#### PROLIFICNESS OF THE BELGIAN HARE.

The query comes to me as to how many litters of hares it is safe and profitable to produce in a single season. I have seen the extravagant statement that ten litters of eight each could be produced in a year. I presume this is possible, but it would certainly not be wise in even so genial a clime as Southern California. One of our wise, conservative breeders told me a few days ago that he preferred to rear only eight litters a year. His practice is as follows: He breeds the does thirty days after the young are born. In two weeks he weans the young, which leaves the doe two weeks' freedom before a new litter is brought forth. He resides in Southern California, where the trying months are in mid-summer, and thus he gives the does the months of July and August for rest and recuperation. I know of another gentleman who has very high-priced animals, some of which he has imported at great cost from England, who is even more careful of his animals. He is satisfied with four litters in a year. I think I have read from good authorities that it is safer to be content with even as few as three litters a year. I should think that, unless we had very high-priced animals, and would very greatly deplore loss of health and life, with wise care and management five litters a year would be safe and profitable. Surely there are very few finer-looking herds than the one owned by our old friend Mr. O. Clute, the gentleman first referred to above. I do not believe that, with his experience, he would have settled down to the practice of producing five broods a season unless such a course was wise and politic.

#### WHAT SHALL WE BUY?

A friend from Iowa writes, asking advice regarding the purchase of Belgian hares. I have seen rabbitries where stock of very high

price was purchased, and others where a very moderate sum was paid. The difference in the animals would not, it seems to me, warrant a man, certainly not if in limited circumstances, in paying fancy prices. Why not start in with cheap animals, and then, if one finds the business pleasant and profitable, breed up by securing more and more excellent bucks? This course certainly involves no risk. It is always safe to purchase animals at a price which the market will warrant. It is always more or less hazardous to pay fancy prices, which are often, except in the hands of the expert business man, only indicative of fictitious values.

Claremont, Cal.

[Prof. Cook's advice in the last paragraph is most excellent. It applies to bees and queens as well. Beginners very often send in and ask for an imported Italian or some high-priced breeding-queen. Of course, we assume they know their business; but wherever we can offer advice safely we urge the buying of low-priced untested — the cheapest Italian queens that can be had. It is expensive business to experiment with fancy and high-priced stock; and for this reason I had thought that, if I went into the Belgian-hare business, I would buy the commonest stock — such as is sold for market, and which I could get at a regular market price. In spite of extravagant statements that are often made concerning this business, I am one who believes, from what I have read, seen, and heard, that there is both pleasure and profit in the growing of these little animals — pleasure to the children certainly. Of all the enjoyable days of childhood, those I spent with my pigeons and tame rabbits were the most so.—ED.]

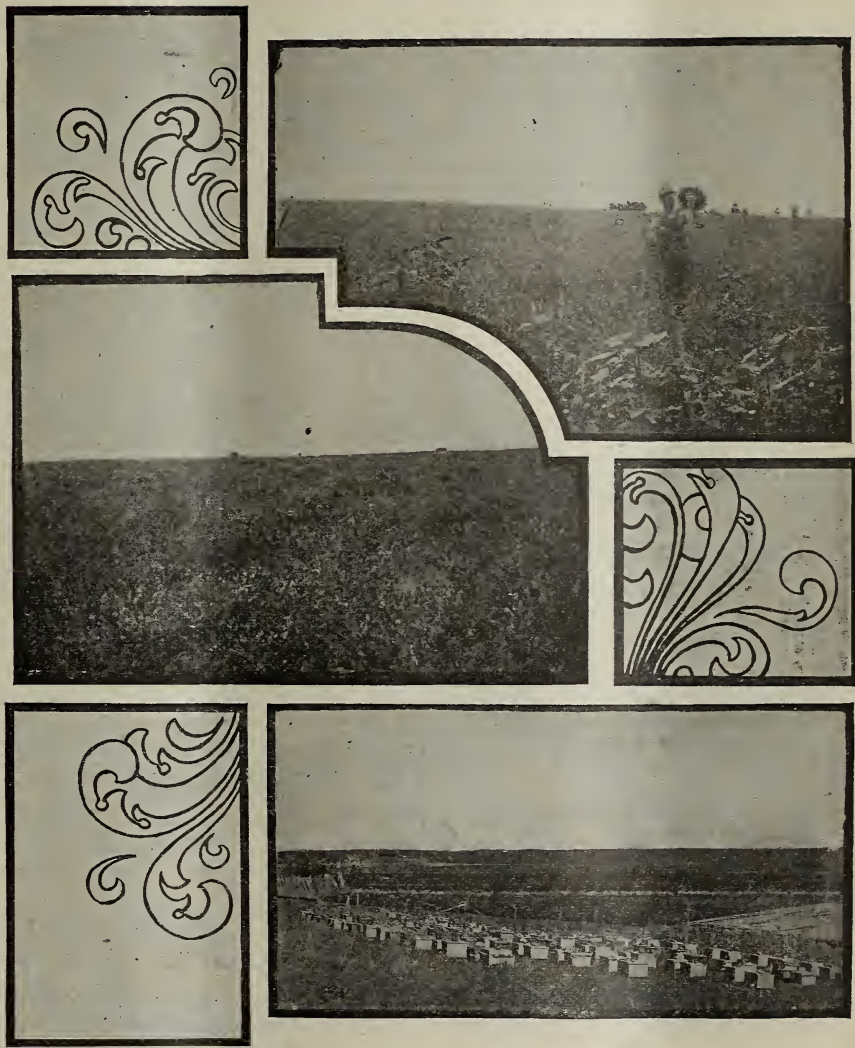
#### BEES FROM TEXAS TO CUBA.

A True Story of how Bees and Bulls made a Trip Together to Cuba.

BY F. H. SOMERFORD.

While engaged in the production of honey in Texas I was never entirely satisfied with results, always thinking too much work was there expended for too little gain; for this part of the State was not a good location, linn being too scarce and horsemint very scarce, owing to the fact that the great prairie near which I was located had long since fallen a victim to King Cotton. However, during the good years there was usually some willow, rattan, elm, and some other little inducements to the bees to encourage spring brood-rearing. Later on, 'he huckleberry gave them employment for two weeks, more or less, from which some little surplus was taken. After this, nothing was to be expected till linn, which usually, from May 25 till June 25, kept the bees tolerably busy after this. Some years some surplus was stored in August and September from milkweed and morning-glory and camomile. About 80 lbs. per hive was a good average for a good year. Remember, these plants I've been mentioning are greatly affect-





THE COLORADO ALFALFA-FIELDS.

The picture in the upper right-hand corner shows my brother Herman standing in an alfalfa-field holding up some of the alfalfa which had lodged badly, to show how tall it is. The average height was 4 ft. 9 in. The stalk which I sent you some time ago measured 6 ft. 2 in., and also came from this field.

The second picture shows a large field of alfalfa in full bloom. Both of these exposures were made near Denver. The lower picture represents our Mount Carbon apiary, of which Mr. F. L. Thompson has charge at present.

The same contains a little over 140 colonies at present.

FRANK RAUCHFUSS.

Denver, Colo., Aug. 27.

[I received a set of photos from Mr. Rauchfuss, and, being pleased with them, I had them engraved. Then I asked him to write a story to fit; but as Mr. R. is manager of the Colorado Honey-producers' Association, an association that sells something like 20 or 25 carloads a season, he did not have time to tell us a long story, so he sent one short and sweet.—ED.]

ed by the weather. In early spring, linn is especially susceptible to cold damp weather at the time of budding out, at which time a few days of unfavorable weather will ruin the prospect for honey from that source, and about one year in four it is entirely ruined, and one year half ruined at this time of season; later on, at the time of flowering, if a little drouth strikes it but half a crop can be expected.

From this count, putting the two half-years together to make a good year, striking out the bad year entirely, we see there could not be counted on more than two honey years in every four.

With these painful facts ever in mind I was always ready to move when I thought by so doing I could better my financial results. Therefore, having heard a great deal of Cuba, which was said to be, after the war, almost a

a stock-car. This kind was preferred, as it seemed to give such nice ventilation, and the weather not yet cool, as it was September, and that month in the central part of Texas offers usually but little change from the month preceding.

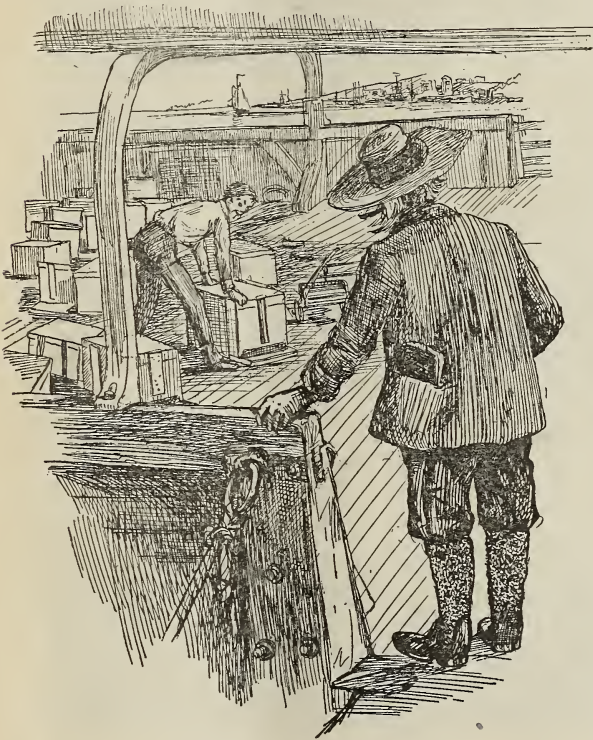
The open stock-car gave entirely too much light, as the result of my experience, though with the thumping and jarring of the car they crowded to the strips of wire cloth where the light from the open car was strong, thus deserting their brood, and all that was unsealed was lost *en route*.

After a trip of 130 miles, which occupied about 20 hours, lying on sidings, waiting for connections, etc., upon arriving at the seaport I found that, owing to some misunderstanding, the ship could not begin loading for two days, notwithstanding the fact the ship agents had wired me they expected to be loading the day of my arrival.

In the meantime I took care of the bees, which required considerable attention, for I found quite a few colonies had enough dead bees below to prevent the circulation of air from below, the strips of cloth being literally closed or clogged with them. I spent the two days in tearing loose the wire cloth, cleaning out dead bees, tying in broken-down combs, and putting them as nearly in shape as was possible, and in so doing many bees were released or flew out; besides this, in the town were many colonies of bees; the few broken combs with the scent of wasting honey soon attracted plenty of bees to intimidate passers-by. This did not amount to so much, though, because this was one of the outer wharves. The boat was chartered for horses, cattle, and jacks, this being the only kind that plies between Galveston and Havana direct. The passenger-boats go round by New Orleans.

Dame Rumor, vile serpent that she is, whose tongue seems to be loose at both ends, soon had the story stalking around town that bees were to be shipped on the steamer to Havana, Cuba. The ever alert newspaper correspond-

ent soon scented a subject, and the next morning's paper stated in a rather cunning way that a cargo of bulls and bees was being prepared to sail—700 of the wildest bulls of Texas were to be shipped together with a carload of bees, a carload of Texas bronchos, and three cars of wild jacks and jinnies, and with this beautiful combination of livestock aboard the good ship the interesting journalist thought if calm reigned without it would be all that could be expected, and that peace within would be impossible. That the lion and lamb could lie down together was perfectly feasible; but for bulls, bees, jacks, jinnies,



THE BULL-MAN ARRIVES.

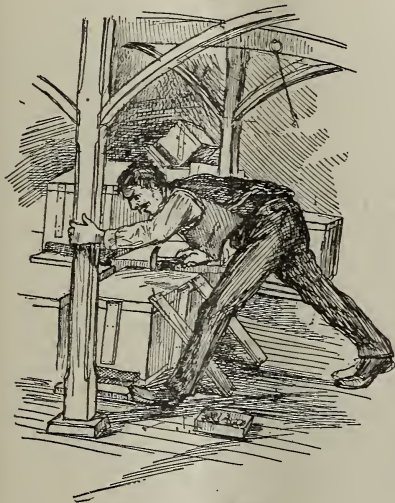
"field of vines and flowers with no bees to gather the wasting nectar," further on you will see to what extent I was able to verify the above statement.

Getting 200 strong four-frame nuclei in shape with a frame of honey and three of brood, and the amount of bees I thought proper, I put on them some covers and bottom-boards that lacked two inches on each edge of being as wide as the hive, whereon both at bottom and top on each edge, or four strips to the hive, the wire cloth was put on, which I thought would give plenty of ventilation, which proved to be a mistake. I loaded into



and bronchos, or mustang ponies to lie down together peacefully was a fact that yet remained to be recorded. The journalist thought that such a cargo should have been sent in time of war.

Luck would have it that the bull-man got his morning paper; the jack-man and the mustang-man were also men of letters, and of course received their morning paper, and your humble slave of misfortune was also an enthusiastic reader. Having heard that possession was nine points in law, it very naturally occurred to me to get my bees aboard that boat at once. Forewarned is forearmed. Such was my case. Having the ever-ready bike at hand I mounted and flew like the news of the morning to the office of the ship's agents, and with the grave complaint that, the two days preceding, the sun had occasioned great loss to my bees, which, of course, was true, and that they would either have to furnish shade for the bees or let me load them on the ship at once, which, after phoning down



TROUBLE AT SEA.

to the stevedore of the ship, was decided upon at once. So I flew back, and with help soon had the bees aboard—hives in flat and other equipment stacked to one side to be loaded at leisure. In the meantime the volume of visiting bees steadily increased, and soon scented the hives aboard the ship, and flew all in and around them, alighting on the wire cloth to learn what the bees inside were fanning so faithfully about. At this juncture the bull-man arrived on the scene to learn if the newspaper reporter had stated the truth about the bees. He was greatly alarmed, declaring it would be impossible to put any kind of stock on board with the bees flying as they were.

I tried to explain to him that the bees were gentle, and would not sting unless they were disturbed, all of which was Dutch to him, for he had known bees all his life, and they had always stung, and these were no different from any others. He left me, boat, bees, and

all, going down to raise the agents for allowing the bees aboard. It was not long after this that a messenger boy brought me a message to come to the office at once. I went, but was framing all sorts of complaints in my mind. Upon arriving at the office I found things in a rather bad state. The ship's agents had just received a cablegram from the agents in Havana and New York asking that bees be left for another trip; but it was too late, and I had too many kicks coming on my side, for I'd been written and wired passage was reserved for me, and the number and size of boxes, and I had also been informed that loading would be completed and ship sail at a date that had past, and still nothing was being put on the boat, and I losing bees every hour. We at last reached an agreement. I went back and partitioned off the part of the boat I was occupying, with mosquito-netting, and the bulls, jacks, and bronchos were put aboard, and the place was bidden adieu on Monday morning with a pretty sea ahead. All went quite pleasantly until the evening of the second day, when we encountered a gale and bad sea. Our ship of twenty thousand tons displacement leaped, wallowed, rolled, and soon had bulls piled one on top of another, with legs and horns broken—bleeding, goring one another, and doing all sorts of injurious things, and continually bellowing. Matters went from bad to worse with all animals aboard. The continual pitching of the ship so worked the top layer of hives loose they enjoyed themselves rolling and banging about. I went in on top several times to refasten them, each time receiving bruises more or less, and part of the time I was badly sea-sick. I soon overcame the sickness, though, missing only one meal at the table.

During the night things quieted down, and the next morning the work of throwing overboard dead cattle was commenced. Over fifty head were hauled out and delivered to the sharks. As to the bees, they were in a troubled condition. Fresh water was given them through the screens. Many had ceased to hum. I sighted the mountains along the north coast of the province of Pinar del Rio; with the captain's glass I could see the palms growing all over them. Later, on drawing nearer to land we could see many interesting objects on shore. While talking with the captain I asked him what kind of sea we had had, and he replied, "Twenty-five to thirty feet."

*To be continued.*

#### PREPARING BEES IN SINGLE-WALLED HIVES FOR WINTERING ON SUMMER STANDS.

BY W. D. KEYES.

*Mr. Editor:*—I notice on page 734 that Mr. Thos. McGowan, Lock 4, Pa., did not succeed well last winter with his bees prepared with the Hill device for outdoor wintering. November 1, 1898, I had 28 colonies on summer stands with  $\frac{3}{8}$  open space above brood-frames; and though most of them were very strong, with plenty of stores, all perished ex-

cept one, and it barely escaped with a handful of bees left. The weather was very cold for weeks together, and the open space above the frames made it impossible for the bees to maintain warmth enough in the brood-chamber to enable them to move out to their stores when all the honey within the cluster was exhausted.

If Mr. McGowan, and other bee-keepers so disposed, will each prepare a few colonies in the following manner I feel sure they will feel highly pleased with results, and I shall be glad to have them report in GLEANINGS issued June 1st next year:

Promptly after the first frost that kills vegetation, and during the warm part of the day, strip the hives to be prepared, in succession, of every thing, down to the top of the brood-frames; and if, upon examination, the outside frames are found to contain little or no honey, replace them with frames filled with sealed honey. If no frames of sealed honey are at hand, the same result can be accomplished by feeding up to, say, 20 pounds per colony.

Cover the frames with a quilt of heavy brown muslin just the size of the hive, without any thing between the quilt and the frames. Take a strip of  $\frac{3}{8}$  lumber 4 inches wide, and make a belt just the size of the top of the hive, which, when placed in position, will rest on the edges of the quilt all around and hold it in place. Fill this four-inch space above the quilt full of dry sawdust; put on a cover that will not leak, with a brick or stone on it. Contract the entrance with blocks, to two inches in width, and without any other protection or attention let them remain untouched until apple-bloom next year, when upon examination they will doubtless find their bees in excellent condition; and if the weather is warm and favorable, they can put on one tier of baited sections with good prospects of getting some delicious apple honey.

To satisfy themselves as to the comfort this method gives the bees, let them go to one of the hives during the winter when the mercury is down to from ten to twenty degrees below zero, take off the cover, and shove the hand down through the sawdust to the muslin quilt just over the cluster, and they will find it dry and surprisingly warm.

I have had good success with five, six, eight, ten, and thirteen frame hives prepared for winter in this way.

The sawdust must be kept dry; and if the bees gnaw through the quilt in the spring, before time for supers, it will be detected by sawdust at the entrance, and it will be necessary to replace the muslin with oilcloth, and put the sawdust in place again. The quilts when removed in the spring will be more or less propolized, but sufficiently porous to allow slight ventilation upward into the sawdust, which thus removes all moisture and impure air out of the brood-chamber, rendering it both comfortable and healthful.

If in trying this experiment the bees have to be fed up, instead of two frames of sealed honey use 6 pounds of granulated sugar, 3 pounds of water, and a pound of golden-drip corn syrup, the latter to prevent granulation

in case all should not be sealed. Bring the whole to the boiling-point, and feed in any practical way, preferably from the top, to prevent robbing.

Kittanning, Pa., Sept. 20.

[Your method is the orthodox one for outdoor wintering, with the exception that there ought to be double walls around the sides and ends of the hives; and while single-walled hives might be warm enough for your climate, they would hardly do where we live, or any place where the frost during the winter runs into the ground along in February and March down sometimes two feet, and where there is liable to be protracted cold of three or four weeks hovering around the zero-point.—ED.]

#### CANDIED VS. EXTRACTED HONEY FOR MARKET.

A Reply to Dr. Miller and the Editor; the Importance of an Effective Display.

BY CHALON FOWLS.

It looks to me, Mr. Editor, very much as though you and Dr. Miller were putting up a "man of straw" for me to knock down. In *Stray Straws*, page 644, Dr. M. gives quotations from Doolittle and Somnambulist in which they tell how their *home customers* prefer candied honey, and you proceed gleefully to count them on your side as opposing the plan of bottling liquid honey for the *trade*. And the Muths too—well, that's cool—and I was just chuckling to think I had captured Dr. Miller's biggest gun, and could now use it to defend my own position. Now, if I understand these gentlemen correctly, they persuade their home customers and manufacturers, or all customers who buy in bulk for their own use, to take candied honey, and this plan I most heartily concur in. But when it comes to putting it up for sale in the groceries in small packages, pounds, half-pounds, and the like, I don't understand that they advocate putting it up candied instead of bottling in liquid form. This plan of putting up honey in the candied form for the grocery trade is no new thing. I have no doubt the plan has been successful with the Dadants, but it does not follow that it would be equally successful with others under different conditions.

Although the scheme has had good backing from the start by editorial indorsement in the bee-journals, the pails used for the purpose being advertised by supply-dealers the same as glass packages, yet the plan has not come into general use; and it's my belief that, for the general market, where the producer does not deal directly with his customers, liquid honey will outsell the candied two or three to one almost anywhere, where there is a chance to make a display. In my own experience the proportion was nearer sixteen to one.

You see along back in the eighties I tried, for comparison, giving the grocers liquid honey in tumblers, and the candied article in the Jones pails with the tin packages all covered with fine lithograph labels. Well, these showy



labels were too common, and the "dear public" would hardly notice them; but the liquid honey in glass would at once excite admiration. Then the small tin boxes looked bad, reminding one of ointment or "rat pizen."

To the bee-keeper who wants to rush his honey off the hives as fast as he can, and get it on the market with the least labor, the plan of putting it up candied has much to commend it. He can extract before it is capped; for when candied it will not show how thin it is; and if a little off color or flavor it will not be noticed as quickly. But in my opinion such slipshod methods should not be encouraged, as it is well known that lowering the quality of any commodity will damage the market for all grades. I would suggest to Dr. Miller that this might tend toward "lower prices for us all," and will also offer the following in addition:

Candied honey is a poor seller on account of its unattractive appearance. Few would buy except those who had previously acquired a taste for it. "Well displayed is half sold" is a maxim that any live grocer will indorse. With candied honey it is not possible to meet this requirement. With less sold at retail there will be more left in the producers' or jobbers' hands, which must be sold to manufacturers at a lower price; this would mean lower prices all around.

Then too, by putting up our goods in an unattractive way we should play into the hands of our enemies, the glucose-mixers, who would not be slow to take advantage of our imbecility by making a fine display to captivate the eye of the public.

This point of *making an effective display of our goods we can not afford to ignore* if we would keep abreast of the times. Go into any well-equipped grocery where they have a fine stock and notice how many different lines of goods are displayed in glass. I have just counted twenty different kinds of fruits and vegetables put up in glass jars, and displayed on a large pyramidal stand in one of our groceries. This did not include jellies displayed in glass elsewhere, besides nuts, dried fruits, cakes, confectionery, and, in fact, almost all kinds of groceries were displayed in drawers or boxes with glass fronts, and all kept polished bright so as to attract attention. Even the old cheese-box, covered with wire screen, had to give place to a beautiful natural-wood case in oil finish with two cylindrical glass fronts that revolve on ball bearings whenever opened.

Our grocers say that, a few years ago, hardly anything was put up in glass.

I agree with Mr. Fred Muth in believing that only a small amount is now sold at retail to what might be if the masses could be made to understand that they could get liquid honey that was pure.

Now I think that, if we ever reach the masses with our product, we should put it on the market so that it will advertise itself; and to do this I would follow nature as closely as practicable by sealing the honey up while warm and liquid; and, as we must use a bottle several hundred times larger than that used by the bees, we should use only thick well-

ripened honey weighing 12 pounds to the gallon. I know the bees sometimes seal up thinner honey than this, but the case is somewhat different. I saw some honey in one of our groceries, put up by The A. I. Root Co. It weighs only about 11½ lbs. to the gallon; but, as it is put up liquid, and is of nice flavor, I'll let you off this time. Oh, yes! It is with "no little pleasure" that I count you on my side (see footnote, p. 644).

Say—if you don't stop calling me "the man who sells his honey at double prices" I shall call you the man who sells *hives* at double prices. I think, though, that the finest and best finished article, be it honey or hives, should be recognized as the standard, while the man whose goods bring only half as much might be stigmatized as the man who sells at half price.

Oberlin, Ohio.

[This whole question, when simmered down, stands about this way: The general public are suspicious of candied honey. Now, honey will candy. Considering this fact, Dr. Miller, R. C. Aikin, *et al.*, argue that the public may be and can be educated to the wholesomeness and purity of honey in the solid form; then if perchance the liquid article while in the market or in the home shall turn cloudy or solid, no suspicions will be aroused as to its purity or wholesomeness. In Mr. Aikin's locality, consumers will take the candied honey as quickly as they will that in a liquid form, and pay as much money for it. Why? Because he has *educated* them on that point. You, friend Fowls, have educated your trade to nothing but the very best of liquid extracted. Your practice and belief have almost been forced on you by the fact that your customers will have nothing but ripe thick extracted honey; but methinks you might personally show to some of the consumers that here, for example, is a honey candied solid that is of the same lot as that in the jar, beautifully transparent, and so tempting to the eye. If you went one step further, and said some people like the candied article better, you might be able to get them to buy some of both. If I mistake not, Mr. Aikin started out on this very plan until now a large part of his retail trade not only receives but *expects* candied honey, for they know they can easily reduce it to a liquid condition by following the directions on the pail.

Now about the man who sells at double prices. At the time of making the statement I tried to place emphasis upon the fact that one can, if he has gumption enough, get double price providing he takes pains to sell *ripe thick* honey of first quality and no other. When the consumers learn that Fowls always sells a fine article, and that Jones sells the cheap disagreeable twangy stuff at half of Fowls' price, they will patronize Fowls every time, even though he does ask "double prices." Of course, the phrase sounds bad; but the man who is alive and awake to the opportunity presented, and who puts out a first quality of thick honey, has a right to charge for his honey twice as much, for it is *really*

cheaper than the honey of the other fellow, who puts out a cheap inferior watery article. Yes, sir; I have great respect for the "double-price" man when he gives me double-price value.—ED.]



MOVING A WHOLE APIARY A SHORT DISTANCE; A NEW PLAN.

I believe it is generally understood among bee-keepers that it is quite impossible to move bees when they are working, without considerable loss. I moved my apiary the last of May, about half a mile, without the loss of any. This is the way I accomplished it: In the day time I prepared my hives by tacking cleats across the bottom-boards and bodies, and also covers. I removed the oilcloth so the bees could cluster up in the cover (my covers have a three-inch air-space, ventilated). At night I stopped the entrances and put them on the wagon, the box having plenty of straw in the bottom, with boards on top of the straw for hives to stand on. Then I hauled them over and put them down anywhere, and left them until next day, with entrances still closed tight. I left in the old yard two hives, one at either side of the yard, each with a little brood, and a few bees and plenty of combs. Next day I went over and arranged the hives in the places I wished them; then about eleven o'clock went to each hive, thumped it, began removing obstruction at entrance, smoking bees at the same time. I went home to dinner and found a few bees coming back, but not nearly as many as I expected, and they were fast finding the two hives that I had left. I let those two hives stay until the next night, then took them to the cellar and left them two nights and a day; took them to the new yard early in the morning; placed one hive in its proper position, took the combs out that had no bees on, and placed the combs with bees from the other hive in their place. I then closed the hive and went to the old yard to watch for bees. I do not think there were a dozen bees lost in the whole operation.

Kilbourne, Wis.

C. H. PIERCE.

[I believe your plan will work. In any event it is more feasible to move a whole apiary a short distance than to move one colony to some other portion of the apiary. When all the hives are moved, the bees seem to discover that a most radical change has been made, and it does not take them long to see that they have got to adapt themselves to their new conditions. But I should not be surprised if some of the old bees, after they have been to the field, would forget themselves and make a bee-line for the old home. But perhaps they are not like human "folkses." I should like to hear from others who are in a position to try this plan of moving an apiary a short distance.—ED.]

ARTIFICIALLY RIPENED HONEY VS. NATURALLY RIPENED.

Mr. E. R. Root:—I notice that you still have in the A B C of Bee Culture that imperfect cut of my old honey-evaporator. For many years it has been laid aside, and I have allowed nature's own plan—the bees—to do the evaporating, as they can do it better and cheaper than I can; and more—the nice lot of beautiful beeswax from the cappings is a source of agreeable profit.

The quality of the honey is most decidedly superior to the artificially evaporated article. All artificial honey-evaporators, where artificial heat is not employed, need very close attention in order to accomplish any good. When the air is thirsty it will take up water out of honey; but when it is pretty well supplied with water, then the honey will take it from the air, and you have gained, and more.

For a good many years I have contended that it is better to allow the bees to finish the honey.

I hope it may be agreeable to you to publish this in GLEANINGS, and also to discontinue that evaporator cut in your A B C book.

S. T. PETTIT.

Aylmer West, Ont., Can., July 25.

[I believe it is generally contended that extracted honey ripened in the hive is superior to that taken from the combs before they are capped, and thickened in evaporating-pans artificially, although I have tasted artificially ripened honey that was quite the equal of that which the bees ripened.—ED.]

JUDGING OF THE PURITY OF QUEENS; HOW TO GET DRONES OUT OF SEASON.

With a suggestion brought out by a Stray Straw on page 381 I will ask a question concerning the reply to John R. Millard, page 352, on the same subject. You say, Mr. Editor, "In the first place, you can not determine a queen's purity by the markings of her drones." The statement is true; but as you here refer to rearing drones from a virgin queen, I will ask whether one can not be certain of the purity of a virgin, if it is known that her mother is pure. When you have worked the plan there outlined, for securing drones from a choice young queen, until it will work no more, remove the queen with enough bees to keep her laying, and a day or two later remove all brood, substituting an abundance of drone comb; allow them to be hopelessly queenless two or three days, and feed during the time. Then return the queen or a younger one, without introducing by the caging plan, and see if the drone comb is not filled with eggs first. Of course, the queen must again be removed to secure the development of the drones. This is not a new idea, but no doubt many of your readers are not aware of the fact that, if a young queen be given to a populous colony of hopelessly queenless bees, the first demand is for drone eggs.

I am not in "the extreme south" by a good deal; in fact, I have known the temperature



to play around 14° below zero at sunrise for nearly two weeks at a time as an exception, and still we have enjoyed a honey-flow from the first of May until now (May 28) that forced me to have cells built in a triple decker ten-frame hive where no bees or brood had been added, and that by the middle of May.

This is the first season during my experience when I could get more full combs of honey than brood in forming nuclei. Where combs of brood were drawn and empty ones given, they would be filled with honey before the queen could get in her work.

I carefully noted what Mr. Doolittle said a year or more ago about caging the queen for ten days should the cell-builders swarm out, the cells in the lower story to be destroyed at the beginning and expiration of the time. About the 10th of May I deviated from instructions by releasing her a day or two too soon, with the result that they poured out again the same day. I returned them to the lower story, the others being set off until the next day. This reconciled them, as it gave them time to get the queen to laying, and there has been no trouble since.

Creek, N. C.

W. H. PRIDGEN.

[Of course, if we know that a virgin's mother is pure we may be equally sure that the virgin and her drones are pure, for this is in accordance with the Dzierzon theory, and with actual practice, if I am not mistaken. With regard to getting drones out of season, we will try your plan, for during the late summer and early fall we never have enough drones, especially from select stock.—ED.]

#### A ROOT-CELLAR FOR WINTERING BEES.

I want to ask for some information of you in regard to wintering bees. I am just commencing in bee culture, and am somewhat solicitous about wintering, especially in this northern climate. My bees have done finely this summer, and I have 17 fine colonies. I am now anxious about carrying them through the winter. I have a fine root-cellar that is cemented and walled on all sides, and I desire some information whether bees put into this cellar would go through the winter well. It never freezes in the cellar at all, but goes down to 32° and remains there. The matter I think to be feared in wintering bees in the cellar would be dampness, though there would be but little of this, perhaps because there would be no vegetables in the cellar except a few potatoes. Now, what do you think about the bees wintering in this cellar? and if not desirable to winter them there, will you give me some directions as to the best mode of wintering here?

J. W. STREVELL.

Miles City, Mont., Sept. 18.

[I see no reason why your cellar would not be all right for wintering those 17 colonies. The matter of dampness would not cut very much of a figure either way; indeed, bees have been wintered in cellars fairly reeking with dampness, and they wintered all right; but, of course, we should prefer to have the cellars dry when possible. For the best re-

sults in wintering, the temperature of the cellar should not go much below 40°, nor higher than 50. The closer you can maintain these temperatures the better will be the result. It may be necessary to warm the cellar by means of a lamp or coal-oil stove; but in such cases there should be a stovepipe in connection with the chimney, by means of which the gases of the lamp or stove may be taken off. If the temperature of the cellar goes down to 32, and stays there for only a day or two, it would hardly pay to warm it artificially; but if it goes down to 32, and stays there for days at a time, it might be advisable to use artificial heat.—ED.]

#### BISULPHIDE OF CARBON—TWO KINDS OF.

Some time ago I saw a query in GLEANINGS, if there were more than one kind of bisulphide of carbon in the market. I understand that you would like to get all the information you can about that drug. Permit me to copy a part of an article written by Dr. Otto Lugger, State entomologist, in *Farm Student's Review*, Minneapolis, Minn. The article was written about gophers and how to eradicate them. He says:

One of the simplest and probably, on the whole, the most effective and cheapest methods yet devised for destroying these animals is by the use of bisulphide of carbon. This compound, when pure, forms a colorless, mobile liquid having a peculiar odor, and, when taken internally, is a violent poison. As usually obtained it contains impurities in the form of other compounds of sulphur which give it a strong and extremely offensive odor, and when inhaled soon causes death. For the purpose of destroying gophers the crude bisulphide is better and much cheaper than the pure article. Care should be taken in using it, as it is both inflammable and explosive. Its efficacy depends on the fact that its vapor is heavier than air, and, when introduced into burrows, it flows like water into all the recesses. This fact should be borne in mind in using it in sloping ground, as, unless the poison is introduced at the highest opening of the burrow, a certain part of the hole will remain free from it where the animal may take refuge.

As the bisulphide fumes are heavier than air, it is self-evident that, in fumigating combs, it is better to place it above, so the vapor can descend, than to place it under the combs, as by the method described by J. A. Golden in No. 17 of GLEANINGS. K. O. SOLBERG.

Kenyon, Minn., Sept. 11.

#### SHALLOW BROOD-CHAMBERS FOR THE PRODUCTION OF COMB HONEY.

I have just been reading Harry Lathrop's plan for getting comb honey, as described in Sept. 1st GLEANINGS, and will say I have been practicing the same thing here for the last nine or ten years, with Mr. Heddon's hive, and one I make. The latter is a 7-inch hive. Once in a while I find a swarm that does not like to work through the zinc honey-board.

WM. CRAIG.

Luce, Mich.

Our bees averaged 62 lbs., and are starting on fall flowers now.

DELBERT E. L'HOMMEDIEU.

Colo, Story Co., Iowa.

# SHORT-TUBE RED CLOVERS; WHY THEY BACKSLIDE.

Darwin, in his "Variations of Animals and Plants under Domestication," says that "the progeny of the first cross always reverts to one or the other of the original ancestors." In my opinion (mind, I don't make the assertion, but simply give my opinion), the cause of so much of Mr. Hasty's clover reverting or back-sliding, as you call it, was due to cross-fertilizing by the bees. You see that will be something that will have to be encountered whenever the seed is sown near other red clover. In breeding a great variety of thoroughbred fowls during a period extending over 40 years, so far as my experience goes Darwin is right. Take, for instance, the Plymouth Rock fowl, which was made by crossing a Dominique cock with a Black Java hen. Now, if you cross the Plymouth Rock with a Brahma or Leghorn, or any pure-bred fowl, a very large percentage of the chickens bred from this cross will revert or breed back to the Black Java or the ancestors of the Plymouth Rock, and some will show the plumage of the *Gallus Bankiva*, or wild-jungle fowl of India, which is the original ancestor of all our domestic fowls, *i. e.*, chickens. It took Sir John Seabright forty years to perfect the "Seabright bantam." He conceived the idea of producing a breed of bantams with the marking or lacing of the Polish fowl. He started with a small yellow or Nankin bantam and a Polish fowl. He had to reduce the size of the Polish bird nearly two-thirds (of course I refer to the progeny). get rid of its crest, or topknot, and beard, and at the same time preserve or perpetuate its lacing or marking upon the diminutive bantam. Now, if we could only control the mating of our queens as we can that of our horses, cattle, sheep, swine, and poultry, I firmly believe that the breeding of bees with longer tongues or any other desirable quality would soon be accomplished.

Ashbourne, Pa.

W. E. FLOWER.

# THE MEAT DIET, AND THE USE OF SUGAR.

You speak of meat diet, and I am pleased to say that, if I took GLEANINGS for a hundred years, and paid you \$1.00 a year for it, and never read it, I would still owe you a debt of gratitude for the mention you made some years ago of the treatment by Dr. J. M. Lewis, Rose Building, Prospect Street, Cleveland, Ohio. I was then pretty well run down in health, and I know some of my friends did not give me very much longer in this world. For several years at the close of the honey season I was sick. As a result of your advice I took treatment from Dr. Lewis. Not only did he leave me in better health than I had ever been, but I learned from him rules in connection with food, etc., for which I shall be grateful as long as I am in the scene here below. I believe there is nothing like meat diet and the hot water between meals; and after the system gets into good condition I have no doubt simple vegetable foods will answer. In beans we have the same components as lean meat. Doubtless the reason why many can

not digest meat and beans is because they eat too many other things with them, and their system would first have to be brought under skillful treatment into a condition to digest and assimilate such food. You can have some idea of the way in which I have gained strength through Dr. Lewis' treatment when I tell you in preaching last winter in the lumber-camps my average walking was more than 15 miles a day, and several times I walked 25 to 29 miles in a day, or even without a stopping-place between; and I made, by walking and running, the 29 miles in exactly 7 1/4 hours, preaching, besides, every evening. I can indorse all you say about sugar, and more. We soon get accustomed to not using it, and will enjoy our food even more without it.

Our Homes for April 1st was to me particularly profitable. How sad it is that salvation and healing of the soul can be had "without money and without price," by simply accepting Christ, a "free gift," and yet people refuse this, and hundreds of thousands can be duped into paying \$5.00 to some humbug. The welfare of the body is, after all, nothing compared with the soul. May you have wisdom from on high to use your influence in GLEANINGS for the Master.

Leith, Ont.

R. F. HOLTERMANN.

[Yes, the meat diet is all right, and so is Dr. Lewis; but a great many who have tried the treatment have attempted to do it alone, without proper advice. When a patient is too sick or too far away to get to him, Dr. Lewis can give treatment through correspondence; but of course he prefers to see the person. He has hundreds of grateful patients who have recovered from their old maladies, among whom may be named A. I. Root, E. R. Root, Mrs. J. T. Calvert, and our friend above, R. F. Holtermann. I could name dozens of others, but they are unknown to the bee-keeping fraternity.—ED.]

# CHOCOLATE ROLLS AND HONEY.

I have just returned from a European trip of three months. While it no doubt is not news to you, it was to me that the staple and universal breakfast meal throughout the Continent, with no exception, from Holland to Belgium, France, Switzerland, Italy, Austria, Germany, and even in the hotels of London, consisted of the regular breakfast of chocolate, coffee, rolls, and honey. Sometimes a marmalade would be substituted for honey. No meat is ever served for breakfast unless specially ordered.

With this breakfast our party, consisting of 44 people, thrived exceedingly, doing steady hard work traveling for three months, no one missing a meal, which seemed to me remarkable, as it convinced me that there must be more nourishment in honey than is commonly supposed. It was all extracted honey, and most of it would not compare favorably with our Northern State production in flavor, etc. The consumption of extracted honey must be very great there. I saw no comb honey.

H. R. WRIGHT.

Albany, N. Y., Sept. 20.



## RABBITS IN THE BEE-YARD TO KEEP DOWN WEEDS.

In answer to Mr. H. D. Burrell, p. 735, I will say that we kept from ten to forty hares, or rabbits, in our bee-yard for several years. The yard was 50×80 feet, and contained about 100 colonies of bees. The rabbits were confined by means of poultry-netting, and a plank ten inches wide was sunk edgewise in the ground to prevent burrowing out. We found the rabbits seldom disturbed by the bees, and the bees not disturbed by the rabbits.

Occasionally, when working with the bees a colony would become "riled;" a bee would try to burrow in the soft fur of a rabbit, which Mr. Rabbit could not endure. A few buck-jumps, a kick, a double summersault, a roll over on the ground, and if the bee was not gone, Bunnie dear would quickly pick the bee out with his teeth, and at once flee to his burrow. The bees seemed to become accustomed to having the rabbits around; and as the hives were raised several inches from the ground it was under these they found a favorite resort. We found the rabbits just the thing to keep down vegetation. They would greedily eat all obnoxious weeds. They were rodents true to their instincts, and would sometimes burrow 20 to 30 feet under ground. Our rabbits were of good size, and comprised every color imaginable in rabbits. My stock was bought of Mr. A. L. Boyden, of Saline, Mich., but now of The A. I. Root Co. W. H. LAWS.  
Round Rock, Texas, Sept. 22.

## FINDING QUEENS—HARD CASES.

J. A. Green's method of straining out queens, page 728, is all right in principle, but I prefer using an empty hive and honey-board. Place the empty hive on the stand where your bees are; put one or two combs of brood in an empty hive; put on a wood-bound honey-board; remove the bottom-board from your colony of bees, and place them on top of your empty hive. Take out the combs and brush off the bees, and you will be sure to find the queen on the honey-board. Of course, this plan is too much trouble to use except in extreme cases. I had one colony last year whose queen beat me, even with the above process. She would fly off and come back and hide among the bees, and the bees would run all over the hive and out in the grass, anywhere and everywhere. I tried at least half a dozen times to catch her before I succeeded; but when I did I pinched her head off.

Another plan I have used with the Simplicity hive is to smoke the bees at the entrance until the hollow space in the lid is filled with bees, which will take about one or two minutes. Take off the lid, and shake the bees a few at a time in front of the hive, and about nine times out of ten you will find the queen. I find this about as good a plan with black bees as I ever tried, and I have tried nearly all of them. J. M. CURTIS.

Montgomery, Ala., Sept. 21.

[This plan will probably work; but, very fortunately, in the case of Italians at least, it is seldom necessary to resort to so much trouble,

and that is one reason why I would not have a black bee in the yard. They are cross, strongly inclined to rob, and their queens—well, it takes an expert to find them unless he takes some such method as that described by Mr. Green or Mr. Cutts.—ED.]

Our crop of honey amounts to nothing. Something seemed to blight the bloom; but I do not think we shall ever get such crops as we used to—too crowded with bees. We have 2500 stands within ten miles, up and down the lakes. S. S. ALDERMAN.

Wewahitchka, West Florida.



MR. W. Z. HUTCHINSON, editor of the *Review*, Flint, Mich., took a picture of the members of the Chicago convention at the close of one of the sessions. For a group view it is exceptionally good, and he offers to furnish it to bee-keepers who desire it, at 75 cents postpaid. The picture will be sent on approval, and, if satisfactory, the amount can be remitted or the picture returned.

## BEES, BIRDS, AND GRAPES.

THIS is the season of the year when we may begin to hear complaints of bees puncturing grapes. "Why," say the complainants, "our grapes are fairly covered with bees; and do you mean to say that your bees do not puncture those grapes? Why, I can show you that they are running their bills away down into the pulp of the berries." Until within a year or so we were not able to meet successfully this sort of talk; but now we have learned that a little bird called the Cape May warbler, with a very sharp long beak, during the early morning, when most folks are not around, will run its beak into grape after grape, making the whole bunch look as if it had been riddled by fine shot. They are quick of flight, and rapid in their work. They will alight on the vine, look this way and that, and then go into the business of puncturing in a wholesale way, which they do most successfully. As these birds are rarely if ever seen by human beings, on the vines, and as the bees come in an hour or two later to complete the work of destruction by running their tongues down into the hole made by the bird a few hours before, the innocent bees are blamed for the whole work.

The facts are, the grapes were ruined by the birds, and the bees only help themselves to fruit ruined and otherwise useless.

The other morning, as we sat eating breakfast, we watched from the window one of these so-called "warblers" get in some of its dirty work. Yes, we "caught him in the very act." Later in the day the bees began their visitations, and ordinarily would have been blamed for something for which they were entirely innocent.

Another grape-puncturing bird is the Baltimore oriole, a bird of brilliant plumage. Sparrows are accused of entering into this disreputable business; but from what observation I have made, I am satisfied they are after the little spiders that are found in many bunches of grapes. I have watched the sparrows very carefully, and have seen them get the spiders, but I have never found them puncturing the skin of a grape. Indeed, their beak is not shaped right for the work.

#### A CHEAP BEE-FEEDER.

A NOVEL suggestion is given out by a correspondent (Mr. Kernan) of the *American Bee Journal*. It is to the effect that ordinary paper bags can be used as feeders for giving syrup to bees. He takes ordinary sacks, such as can be obtained at groceries, pours syrup into them, sets them on top of the frames, in a cap or upper story, pricks a few holes in the side of the bag, and then invites the bees to help themselves. There is no doubt at all that the paper will hold the syrup, and that as fast as the syrup exudes through the pinholes the bees will take it up. In the absence of feeders one can use the paper sacks very well, I should judge, and then he would have the satisfaction of knowing that, when through feeding, he could burn his sacks up.

Mr. Kernan thinks that some of his bees were poisoned\* by the printing-ink on the side of the sack. I can not think that that had any thing to do with it—that the dead bees, if any, were robbers that had stolen their way through the entrance, and, on being discovered, were killed by the inmates of the hive. During robbing time, robbers are quite apt to work themselves through the entrances of fed colonies, and be found in and about any kind of feeder, dead, whether there is printing-ink about it or not; but the idea of using paper sacks is quite ingenious, and I see no reason why it would not work very nicely.

#### THE TEXAS DISASTER AND THE BEE-KEEPERS WHO SUFFERED FROM IT.

We wrote to a few of our bee-keeping friends whom we thought might be in the track of that terrible Texas tornado and flood; and so far the only real sufferer is our old friend W. O. Victor, of Wharton. O. P. Hyde & Son, at Hutto, write that the storm did but little damage to them. The Jennie Atchley Co. state that, while they were on the edge of the terrible storm track, they are safe; that they have been trying to relieve friends and bee-keepers who lost all they had, including bees, hives, and all other property. Mr. W. H. Laws, of Round Rock, has also suffered to some extent. Mr. Victor, unfortunately, only eighty miles from Galveston in a north-westerly line, has suffered almost as much as some of the people in the ill-fated city. The year 1900 has been a peculiarly hard one on him. In April he was visited by a flood occasioned by the overflow of the Colorado River,

and he was compelled to scaffold, or, rather, to put his hives on stilts, in order that they might be kept out of the water; and all during the summer he was compelled to wade in mud and water in order to get anything done; so that, taking it all in all, he was ill prepared for the next disaster. In the Galveston tornado he had about 200 colonies blown over and scattered broadcast over the yard, and about half of his nuclei in his queen-rearing yards were wrecked. He says if he had dumped them out of a running wagon with a scoop they could not have been more disarranged. On Sunday, the 9th, as soon as he could get out, and found he could stand the storm, he set to work to put things to rights. He had enough bees in most hives to make pretty good nuclei; and as he had plenty of cells with which he intended to requeen his out-apiaries he did not lose as much as he thought at first. His out-yards were not damaged to so great an extent, as they were in the timber. But the trees were blown all over the yard, and the hives could hardly be seen for the underbrush and uprooted trees. Fortunately, only one hive was entirely crushed. His residence is not demolished, but severely racked. His bee-supply house is totally demolished, and his supplies more or less damaged.

Mr. Victor does not ask for charity; but as he has a splendid lot of nuclei and a select stock of bees, he does ask the generous-hearted bee-keepers of the land to give him a lift by sending him orders for bees and queens. His honey season was short, and therefore he is obliged to depend almost entirely on his queen-rearing to make another start. He has a large number of colonies and nuclei, and he says we need not be afraid but he can take care of any number of orders. He has the reputation of being prompt, and his stock good; and if our friends can not send him orders for queens now, if they will remember to send to him early next spring they will be doing him a great favor, for he can fill orders for queens every month in the year, being located in the almost extreme southern portion of Texas.

#### FEEDING BEES MEDICATED SYRUP FOR THE PREVENTION OF DISEASE; HOW TO DO IT.

In many localities, especially in New York, Michigan, Colorado, Wisconsin, Ontario, and other localities more or less subject to black brood, foul brood, and pickled brood, it certainly would be advisable, if the bees require feeding at all, to medicate all syrup fed, with some antiseptic of recognized value.

Let it be understood that germicides, when introduced into the food, in a quantity sufficiently diluted to be harmless to the bees and to the brood, will not kill the spores of either black or foul brood; but they will kill the bacilli, or living germs, that have developed from the spores, or, as we might say, from the eggs of the microbes. The only thing we can hope to accomplish by introducing the medicated feed to the bees direct is to kill the bacilli as fast as they develop from the spore state. The active principle of the disease in the spore is protected by a cyst, or thick coat-

\* Printing-ink is not poisonous to human beings, and can not be to bees.



ing, which, I have shown, will successfully resist the action of boiling water for an hour or an hour and a half at a time. This same coating will also resist the action of drugs when given to the bees at the proper dilution.

There are hundreds of bee-keepers located in vicinities where black and foul brood have been raging; and I would by all means urge all such to medicate all the syrup they feed, either with carbolic acid or beta naphthol, a new drug that is decidedly less objectionable to the bees than the other, and quite as destructive to the active bacilli themselves.

This same drug is recommended by beekeepers in England, and especially by Thos. Wm. Cowan, editor of the *British Bee Journal*. It comes in a kind of powder, in one-ounce boxes. Into an eight-ounce (or half-pint) bottle empty one of these ounce packages. Then pour in just enough wood alcohol to dissolve the powder; then fill the bottle full, or very nearly so. This quantity of chemical in solution is just right for 140 lbs. of sugar undissolved. Measure off 140 lbs. of sugar, and then 140 lbs. of water, and mix. Pour the contents of this eight-ounce bottle into the syrup, and stir well. We make all our syrup by mixing sugar and cold water, equal proportion, in the extractor; that is to say, after the two are placed in the machine we turn the reel vigorously for a few minutes. The next move is to pour in the requisite quantity of the drug in solution, and turn the reel again till the ingredients are thoroughly mixed. If one wishes to feed a less quantity he can figure out for himself just what the proportions will be.

Mr. Cowan, just referred to above, says that beta naphthol has been thoroughly tested in England, and its efficacy proved, and that it is now the common practice of the most advanced bee-keepers in that country to medicate all their syrup before giving it to the bees. We are medicating all the syrup fed to our bees this fall, with the naphthol solution. We are doing it as a matter of safety; for no one knows in these days when one of the dread diseases may visit his apiary.

Beta naphthol can be obtained at most drug-stores; but when one can not get it in his locality we will furnish it. See Special Notices.

Carbolic-acid crystals can be furnished at the drugstores in pound bottles for about 75 cts.; but on account of a very decided repugnance for it on the part of the bees, the beta naphthol should be used.

We have been trying the carbolic-syrup mixture in the proportion recommended by Cheshire, but our bees positively refuse to take it. They will go to the feeder and smell of it, and then turn away in disgust. We have even reduced the quantity of the acid, but that seems to make but little difference; and I conclude, therefore, that bee-keepers had better not waste their time with it. I remember when we used to spray with a solution of carbolic acid and water, when we had foul brood, the odor would sometimes drive the bees clear out of the hive.

But it must be distinctly understood that neither carbolic-acid nor beta-naphthol syrups

will cure a case of foul brood after it is well started. I would waste no time in spraying-solutions of either in water on foul-broody combs. They are valuable only as preventives—that is, to catch the disease at the start. A pail of water at the beginning may put out what would otherwise be a million-dollar fire, when it would be worthless after it had got well going.

#### WINTERING IN THE SOUTH.

A SHORT time ago a subscriber wrote, asking why there was nothing in the columns of GLEANINGS or any other bee-journal on this subject. He had, he said, read a great deal about wintering that did not apply to his locality. He was a beginner, and desired to get information. It is true, there has been nothing on the subject of wintering in the Southern States particularly, because for that portion of the country there is no "wintering problem," and it almost seems as if there were nothing to be said on the subject; but for the benefit of our correspondent and others I will give what I believe to be the common practices of bee-keepers in the sunny Southland.

Where bees can fly almost every day in the year, and for ten months in the year can gather a little honey or pollen, outdoor wintering in single-walled hives is recommended. Double-walled hives would do no harm, and might, during the coldest of the weather, save a little brood; but it is doubtful whether the added expense for the extra walls and packing will compensate for the possible slight loss of brood and bees during a few cold days. While I would recommend single-walled hives for the southern portions of our country, and for some parts of the West, I would always urge that the same be located in an inclosure of trees—a tight high board fence, a hedge fence, or any thing in the way of buildings that will afford a windbreak against the prevailing winds. The establishing of windbreaks is one of the most important requisites in either the northern or southern portion of the country.

While it is no great trick to winter bees in such localities as are found in Florida, South Carolina, Texas, Louisiana, Georgia, Alabama, South Carolina, yet one must be careful to see that his bees do not run out of stores, as it seems to be a generally acknowledged fact that bees wintered in the South consume a much larger percentage of stores, according to the size of the colony, than those in the North. Those in cold climates are compelled to contract into a very small ball for the purpose of concentrating the animal heat; and while in that condition they go into a sort of semi-dormant state, during which they consume a comparatively small quantity of food. On the other hand, bees in the South, especially in the warmest portions, will have access to all parts of the hive, will be rearing more or less brood, and, as a consequence, when natural flora does not secrete nectar they will be liable to run short of stores, and starve. To the southlander let me urge that the greatest danger is starvation; and the next greater is more or less of robbing during a dearth of honey. Indeed, all things considered, I be-

lieve that the Southern bees require more watching than those of the North.

In localities like Virginia, Tennessee, and other States lying in about the same latitude, it might be advisable to use double-walled hives; but we do know that the majority of bee-keepers in that latitude winter their bees successfully in single-walled hives; but I believe it is the general practice to place on top of the hive a super containing chaff, leaves, planer-shavings, or some good warm packing-material; then if the colony is not very strong it is advisable to place a chaff division-board on each side of the cluster. In all cases the bees should not be given a larger cubic capacity than they can comfortably fill with bees spread out as they usually are on a day when the temperature is not below 70 F.

In Colorado it is customary to winter in single-walled hives. A shallow cap or tray containing an inch or so of packing is placed on top of the hive. Very often, for further protection, a sort of shed or roof, as shown in our issue for July 15, this year, with its back to the prevailing winds, is built over a row of hives. The Colorado bee-keepers are troubled some with sandstorms, and with fierce piercing winds; and while the temperature may go down below zero, it is not likely to remain so for more than a few hours, when one extreme will be changed for a temperature of 60 or 70 F., and the bees flying. For such conditions double-walled hives, and an excess of packing-material has been found to be not at all necessary in Colorado.

#### UTTER VERSUS UTTER; THE BEE-KEEPING INTERESTS OF NEW YORK THREATENED.

FOR the last week or ten days clipping after clipping relative to a celebrated bee-suit in New York resulting in a verdict against the bee-keeper and in favor of the fruit-grower has been sent in to us, asking what we or the National Bee-keepers' Association was going to do about it. The case was promptly referred to General Manager Secor, who, it appears, had already taken the initiative by authorizing an appeal, and pledging \$100 toward securing a reversal of the judgment of the lower court.

Mr. Secor explains his own action as follows:

Wide notoriety has been given through the daily and weekly press to a lawsuit between two brothers near Amity, N. Y., one a bee-keeper and the other a peach-grower. The fruit-grower alleged that the bees belonging to his brother, the bee-keeper, destroyed or lessened his crop of peaches. The case seems to have been one growing out of former family feuds, and was, therefore, fought bitterly, but not thoroughly. While the public has no interest in family or neighborhood quarrels, the bee-keeping fraternity does have an interest in truth and justice. The case was tried before a justice of the peace, and from reports of the evidence presented by defendant the bees were fairly exonerated; but the court decided against the bee-keeper, and rendered judgment for \$25.00 and costs.

Notice of this suit came to me, as General Manager, but too late to get in the proper evidence to rebut the allegations of the plaintiff. Therefore I have authorized an appeal to the County Court, and have pledged one hundred dollars toward fighting it. The defendant is a poor man, which may have had something to do with the failure in the lower court, as he could not afford to employ the best legal counsel, or procure the attendance of expert witnesses from any distance.

I am assisting the attorneys in obtaining evidence, and hope to get a reversal of the lower court. I merely want to let the bee-keepers know that the National Association is not dead or asleep. The Association can not afford to let such a decision stand, and will fight it the bitter end, if I have any authority in the matter.

EUGENE SECOR.

Forest City, Iowa, Sept. 17.

I believe every bee-keeper in the land, especially the members of the Association, will commend the action of the General Manager; for this is one of the most important cases that was ever brought before it, and it is very essential that the verdict of the lower court, so inimical to the interests of bee-keepers, should not be affirmed by the higher court. We had considerable correspondence with Mr. Secor, and know he has taken a very active interest in the case, and will see that expert witnesses are furnished whenever they may be needed. A. I. Root himself has offered to pay his own expenses, and testify for Mr. Utter the bee-keeper, should his services be desired; and I doubt not that other bee-keepers will be glad to respond in like manner. In New York there are two directors of the Association in the persons of Mr. W. F. Marks, of Chapinville, and Mr. P. H. Elwood, of Starkville. Both of these gentlemen will be able to render expert testimony. Mr. Marks is a fruit-grower as well as a bee-keeper, and Mr. Elwood is one of the best-informed bee-men in the State.

The bee-keeping interests of New York are very extensive; and if an adverse decision should come from the higher court, it might mean the wiping-out of the industry in many important sections, and seriously handicapping it in others.

It is unfortunate that this case should arise out of what was probably an old feud, and from spite-work. The fruit-grower, if I understand the case, is much better fixed financially than his brother the bee-keeper; and it goes without saying that he will undoubtedly fight his side of the case to the bitter end. It is not a question, apparently, whether the bees are a nuisance, but whether one brother will be able to "get even" with the other. If this is the case, then I see no reason why the bees should not be exonerated from all blame, for from the newspaper reports there was no real testimony offered proving that the bees did puncture the fruit or "sting the trees." If given a fair chance we can easily show the absurdity of both propositions.

To show how the general press of the country regard the decision of the judge (or justice) who decided against the bees and the possible consequence of that decision upon the bee-keeping industry, I give here just one sample from the *Lewiston Journal*, Maine. It reads:

#### A WONDERFUL DECISION.

A New York judge has delivered a decision that renders the owners of bees liable for damages for trespass on the property of other people. This is a case of justice run mad. Should it be sustained in the higher courts and extended to other States it would simply kill the bee industry. We can control our cattle and sheep but we can not control the flight of bees. It is clearly evident that the fools are not all confined to the common classes. When judges get to rendering such decisions as this it is high time for them to step down and out, so as to make room for some one possessed of common sense.





Righteousness exalteth a nation; but sin is a reproach to any people.—PROV. 14:34.

A subscriber sends me a newspaper clipping containing Gen. Corbin's defense of the army-canteen system, and suggests that I use it for *Our Homes*. I shall not take space to give Corbin's letter here, for I suppose most of you have seen it, or heard more or less in regard to it. The circumstances, as I take it, are as follows:

Our administration decided, some little time ago, that it was not best to let the majority rule, especially in regard to temperance matters. The temperance and Christian people worked hard to get a law banishing the canteen from the army. Everybody understood that law—the whisky people most certainly, or they would not have worked as hard as they did to defeat it. In spite of all they could do, the Christian people, the temperance people, and the good people generally, outnumbered them. They gave up, and admitted they were defeated. After thinking the matter over quite a while, however, in their desperation (at least it seems so to me) they got Attorney-General Griggs to make his famous decision (or "*infamous*," as the *Chicago Advance* calls it). The Griggs decision, however, could not have stood a moment against the indignant protests of those who worked so hard for the law, and fairly secured it, had not President McKinley indorsed Griggs. The whisky element evidently expected we would give up and drop it there. But it has not been dropped; and, God helping us, it never will be dropped. Our administration has been so worried that it evidently felt something had to be done; therefore we have had letters and speeches in favor of the army canteen as it is. Of course, the rum power has done every thing that could be done to get influential men, and those who stood high, to help it out of its shameful predicament. As soon as I read the Corbin decision I was satisfied at once it was a skillfully gotten-up affair managed to pacify the churches and law-abiding citizens in general. To show you that it is such, permit me to quote from the *Christian Endeavor World*. Surely no one will attempt to say that this periodical is a political organ:

We are glad to note that the War Department has thought best, in the person of General Corbin, to issue a defense of liquor-selling in the canteens. Of course, we should infinitely prefer a condemnation of it; but since that is not to be expected, the next best thing is that the temperance sentiment of the country should have put the department on the defensive. The reference, in General Corbin's letter, to the "unwarranted anxiety of temperance people about the army," shows what has stimulated this official utterance, and the appearance of the defense at the opening of the presidential campaign is decidedly timely.

General Corbin's desire to uphold regimental saloons has led him into statements that are positively ridiculous, and that go far, in themselves, to offset his argument. For instance, he soberly claims the army to be "a model temperance society, a practical one, one where reasonable abstinence is the rule and where excesses are the exception; a society whose precepts,

no less than its example, could be followed by all people in safety and sobriety." "The army of to-day," he declares, "in comparison with all other citizens, is the most abstemious body in our own country."

To support these startling propositions General Corbin states that, since the canteen was established, the health of the men has improved, the number of trials by courts-martial and the number of desertions have decreased, the savings-bank deposits have increased, 1019 commissioned officers have reported that the canteen is "an effective temperance measure," and the average expenditure for beer is only twenty cents a month.

The most plausible of the general's arguments are based on a misstatement of the temperance position. We object to no feature of the canteen but the liquor-selling. The arrangement for games, for letters home, for reading, for co-operative store-keeping, we commend most heartily. We believe they have been productive of all the good that General Corbin claims for the institution as a whole. We believe that if liquor-selling should be eliminated from the army canteen, as the naval authorities have with energetic conviction eliminated it from the canteen of the navy, far greater improvement in our army could be recorded. We believe that the official sale of any liquor on which men can get drunk, and the detailing of soldiers to act as saloon-keepers, is entirely harmful. With no purpose of defaming our soldier boys—and they are mere boys, most of them—but with the most profound reverence for their bravery and patriotism we have, nevertheless, abundant evidence that the agitation for the removal of this great temptation is far from unnecessary. Calling the army "a model temperance society" is a bold but scarcely a convincing expedient.

Now, there is another point to this matter, and to me the most painful (I think I might as well say *shameful*) one. The question before us is not whether the liquor-selling canteen is a good thing or a bad thing. *That* part has been settled. It has been voted out of the army as fairly and squarely as could be, for Congress passed a law abolishing the canteen from the army. The President and Attorney-General Griggs know this, certainly, as well as anybody else. The only question to be discussed at the present crisis is, Shall the majority be permitted to rule? or, in other words, shall our laws be enforced after they have been honestly secured? The administration has, without question, decided that it is not best to let the majority rule, on the ground that the voters of the United States are not, as a whole, wise; that they are not capable of grasping these great problems; that it would not be best to permit them to have their way about the liquor-trade, even if they were in the majority. Let us suppose for a minute that this is true, and that there are times when our chief officers know better what is best for the people than the people do themselves. The next question is, "When the people are too ignorant or too narrow-minded to decide what is best, who shall stand over all and above all, and decide?" We profess to be a Christian nation. It says on our coins, "In God we trust;" but it is not God who is ruling when the people are incapable. It is the whisky power. Hanna said recently here in Ohio, "There must be no temperance legislation in Ohio this year"—that is, just before election. Foraker owned up, when he was pressed so he could not help owning up, that he had said it would not be best to let Ohio have the local-option law. In his opinion it would not be best to let the people of Ohio decide whether they should have liquor-selling right around their homes or not. He said in substance, No matter how strongly the



majority of the people object to liquor-selling right around their homes, it is not best to let them have their own way about it. He did not say, but I shall take the liberty of saying for him, that it would be best to let the brewers plant saloons anywhere they wanted to, no matter what the majority of the resident people thought about it; and the brewers are already saying to themselves, at least I judge they are, "Help yourselves if you can."

The Chicago *Advance* is a very wise, careful paper—in fact, I think it is a little *too* careful about criticising the present administration. Here is their version of the matter we have been talking about:

And what of the President's consent to the annulment of the anti-canteen law? asks a correspondent. It is one of the most serious mistakes of a good administration. The most vulnerable point of McKinley's administration is not Imperialism, so-called, which is good or bad according to the construction put on it, but that he assented to the astonishing decision of his Attorney-General which turned a prohibitory law into a permissive law. We do not call him a "vile hypocrite," as does an indignant correspondent, for we know that many men in army circles favor the canteen as the best method of mitigating the evil of drunkenness in the army. In this matter the President probably followed his favorite method: to learn what is the prevailing trend of public sentiment, and decide accordingly. The trouble is that he tried to ascertain the trend of public sentiment from a partial public, from army circles and the Cabinet; for if he had canvassed the Methodist Church and the other religious bodies of the United States, he might have concluded that his Attorney-General had not been able to think straight when he gave his famous, or infamous, decision as to the meaning of the anti-canteen law. It is true, and "pity 'tis 'tis true," that neither in the army, nor in society as a whole, is public sentiment predominantly in favor of the entire prohibition of the liquor-traffic.

I have just one more point to consider. When the President failed to make any reply to the temperance people, although month after month passed by, a delegation of women visited him. I do not know whether they demanded an audience or not; but they certainly were some of the best women of our land. He granted the audience. He listened to all they had to say, but courteously informed them the Griggs decision would have to stand. He was really crowded into a close corner. He was obliged to say something in defense of himself and Griggs. As there was no other alternative, and as he was determined to defend Griggs, he said with Griggs, or at least said in substance, the law was not plain—iniminating that neither he nor Griggs understood what the temperance people wanted. He said if they would get a law passed that was plain and clear he would see that it was enforced. Now, I think I am safe in saying that there is scarcely a man or woman in the United States who believes anybody did not understand that the people who worked so hard for that law did not mean that it should get rid of the canteen *entirely*. The *Advance* and other Christian papers say it is "too bad," and let it drop there. All our Presidents, from George Washington down, have been, as a rule, able and honest men. The father of our country set a good example to start with; and in all the records of the lives of our Presidents, and in the history of our laws down from that time to this, there has never been a case before, I believe, where the very *intent* of a good law

has been so completely nullified as was the anti-canteen law by the present administration. I do not believe much in the policy of abusing our Presidents, much less President McKinley. In the main he has given us a wise administration; but in the matter of this temperance legislation I can not help feeling that he has yielded to the pressure of the bosses instead of following the dictates of his own good judgment.

May God help us; may he give us wisdom; may he help us as a people to be as wise as serpents and as harmless as doves. May he give us grace and strength to do our duty in spite of the liquor-traffic, or in spite of Satan in any other guise or form with all the followers he can scrape up and bring forward, even though he rake and scrape to the very depths of the bottomless pit.

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#### DO RAILROAD COMPANIES HAVE SOULS?

We have been so often assured they have neither souls nor consciences I take pleasure in speaking a kind word for at least one railroad company. During my trip to Canada, while the train stopped at Niagara Falls I amused myself by reading a great placard that said, "To-day you can go to Toronto and back for only \$1.00." A little further on I had to change cars at Suspension Bridge. The conductor said we should have to wait about twenty minutes. After that time a train came up, and everybody rushed to get on in order to secure a seat. I asked one person if that was the Toronto train, and he said it was. Then I asked another person if that was the only train going to Toronto just then. He said it was the only train. I thought the cars looked a little shabby for regular first-class passage, and when the conductor came around he told me I had made a mistake, and got on the excursion train—that my ticket was "no good;" but as they advertised to Toronto and return for only \$1.00, I thought perhaps I should not be very much out of pocket to pay my fare only one way; but I had to pay 20 cents car fare and \$1.25 on the steamer. The purser said he could not make it any less, even though I could have had the whole round trip for only \$1.00 at Niagara Falls. I thought I had read in some railroad company's folder that if, for any reason, we were unable to use any portion of a ticket, if said ticket were returned to the place of purchase a reasonable amount would be paid back. When I reached home here in Medina I made a statement of the matter, and gave the unused part of my ticket to our agent. In due course of time I had one of my pleasant surprises in the shape of \$1.25 from the Grand Trunk Railway. Almost everybody on that steamer paid really less than 50 cents for passage; yet because I was unable, under the circumstances, to get to Toronto on time unless I paid the *regular* fare, \$1.25, the Grand Trunk Railway Co. made good the \$1.25. Well, I should have enjoyed that steamer ride across Lake Ontario quite a little more had I *known* I was going to get my \$1.25 back again. It does me lots



of good to think that a great railway system is in the habit of protecting stupid and blundering travelers in that way.

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AN INSTANCE OF THE WONDERFUL INTELLIGENCE AND ALMOST REASONING POWER OF THE HONEY-BEE.

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On the 12th of September a shipment of honey came in, and two 60-pound cans had been damaged so that the contents had leaked out and run through the floor of the box car. The railroad company had agreed to take the car away at half-past ten; and as the weather was cool the bees had not discovered it at that time. Unfortunately the company failed to move the car as agreed, and I knew nothing of it till I was apprised something was wrong by the unusual number of bees swarming around the windows and doors of the factory. Then I made a little row in the camp. We carried a hose over to the leaky car and washed away the honey, cleaning it from the gearing, ironwork, and underside of the car until the bees were pretty well satisfied there was nothing more to get, although they were hanging around in great numbers. To prevent the bees from getting the honey inside the car, our boys covered the floor pretty well with sawdust. About three o'clock the engine came around and pulled the car away. A little after four, some men who were loading wheat informed us our bees were making them a great deal of trouble. I at once jumped to the conclusion that the company, instead of taking the car entirely away, as agreed, had only removed it to another location in the yard, and that the sticky car was still enticing our bees. I went over, saw the sawdust on the floor on which they were dumping bags of wheat, and concluded it was the honey-car; but while I was puzzling my head to account for the fact that the ironwork under this car showed no trace of honey or water either, a man called to me and pointed to *another* car in still another location, just swarming with bees around its door, inside and out. Then I "caught on." Do you see the point, friends? There was not a particle of honey in or around either of the two cars I was looking at. After the honey-car had been pulled clear out of town, the bees, not willing to give up, proceeded to "leave no stone unturned," and were investigating every car having an open door that, in their judgment, *might* be the one that had been pulled away. When they found one with sawdust spread over the floor they naturally concluded *that* was the car, and got down on their hands and knees (figuratively) searching in the sawdust for the honey. The other bees, seeing them thus employed, naturally concluded this was the place. Others, having learned that one box car contained so rich a find, concluded that a search through all the cars in the yard might possibly reward them for their investigation; and it was only in the cool of the evening that they were willing to stop digging in that sawdust, and be *convinced* there were no more honey-cars in the neighborhood.

Now, friends, it may not be true that bees

recognize colors, but they certainly do take in the general makeup of objects. They are not only able to recognize a hive, but they know a box car at sight; and even if you move it to a different location they take in its general appearance so that they know pretty well how to find it in case of removal. I am not prepared to prove that they read the letters "Big Four" on the side of that car, nor that they remembered there was an enormous figure 4 printed in white on the red door of the car they wanted; but I tell you they came pretty close to it.



ANOTHER TRIP TO NORTHERN MICHIGAN.

I find myself the 20th of September in the Traverse region once more, and I am greatly interested in the different methods of farming that I see going on about me. For instance, Mr. Hilbert's 17-year-old boy is plowing under a tremendous growth of clover in order to sow rye. This rye is to be plowed under when in blossom, for planting potatoes. Mr. H. has for three or four years turned under rye for potatoes to the extent of several acres each year, and has *never* had scabby potatoes; but when he turns under clover in the spring he often has a great part of his crop ruined by scab; and, by the way, this opens the way to tell you that our new Russet, so called, has been here for three or four years, and is called the California Russet, and *never* scabs. It is grown largely, and would take the place of almost all others, but it does not yield like Empire State, Beauty of Hebron, and Rural New-Yorker. These three last are the great staple varieties. The Rural gets so large it is often hollow unless they prevent it by close planting. I told them I thought Carman No. 3 would be an improvement in this respect; but it has not been introduced here very much.

Mr. Hilbert, situated out here in the country, ten miles from Traverse City, and a mile and a half from his postoffice, makes a use of the telephone I never thought of before. Last evening, before sending to the postoffice, he called up the postmaster and asked what mail there was for him. The answer was, "Two letters for A. I. Root, nothing else." I suggested he might, if on good terms with the postmaster, get him to read the postal cards to him. He said that, in strawberry time, the postmaster, by his request, often opened letters and read them to him *through* the telephone. One rainy evening after we had been kept indoors all the afternoon, friend H. called up several of his neighbors and introduced me through the phone. Mr. C. Cole is a peach-grower. He told me, in answer to questions, that his peaches from five acres were going to bring him *this season* fully \$500. It gave me the fever to start a small orchard on some sharp high sandy hills on my 40 acre farm. I had figured these hills were too high and steep

for any thing. I never saw finer peaches anywhere than we have here in great abundance.

Last Wednesday morning, as I looked out of the car-window, just at daylight I saw frost on the fences, grass, potatoes, and every thing else; but as I neared Traverse City, about sunrise, I was pleased to note there was less and less frost. An hour later, when on my wheel, I went along the beach on the bay, and I saw all sorts of garden stuff, even cucumbers and tomatoes, not harmed in the least; and since then I have not been able to find a thing injured on the whole peninsula. To-day in riding over the country we found one farmer who has 50 acres of potatoes. Until this season, very nearly all the potatoes have been dug by hand; but just now they are beginning to buy the Dowden diggers.

#### MORE ABOUT CLOVER.

Mr. Hilbert has *acres* of mammoth and medium clover that was sown among the growing corn in August, at last cultivating, and it is now just acres of green. He has grown crimson clover more or less for several years, but has decided, for this locality, it has no decided advantage over the red, especially as it doesn't stand the winter as well. He says that, as far as he knows, he first started sowing clover in corn. The seed is cultivated in with a fine-tooth cultivator running shallow.

#### CLOVER WITH BUCKWHEAT.

Now, this isn't all. Mr. H. also sows clover seed with all his buckwheat; and now when the buckwheat is about ready to cut, the ground is green with a thick heavy stand of clover that will come right on as soon as the grain is cut and removed. All around him are farms where there will be only bare ground where corn and buckwheat grew, while on his own place every field is green with luxuriant clover. When he comes to put in crops next spring, every field will have a covering that amounts to many loads of manure evenly spread, with no expense for hauling or spreading; and, in fact, it costs little more in any way than the expense of the clover seed.

The importance of clean pure clover seed comes in here. In one of his potato fields we saw quite a lot of large thrifty docks. The seed was in with the clover. When they first found it out he and the children pulled out a great many, but more are to be looked after yet. Of course, they do no very great harm if none are ever allowed to go to seed.

While careful, thorough tillage naturally brings the largest crop, there are occasionally queer exceptions; and the good farmer needs to have his eyes always on the alert. This is not strictly a grape region, yet some very good grapes are grown. Some years ago Mr. H. procured cuttings of some grapes that pleased him, and grew vines enough to cover an acre or more. He gave them clean culture and careful pruning for three or four years, but got so few grapes he decided not to go to the expense of posts and wire, and finally abandoned the field and let the vines go without pruning or cultivation. Of course, they sprawled all over the clean sandy soil, and last season he sold quite a fine crop of grapes,

and has a still larger one this year. The ground slopes to the south, and the hot sand has the effect of ripening the clusters that almost or quite touch it, considerably ahead of grapes kept up on a trellis. When he made his cuttings he selected two varieties, one early and the other late, and now both kinds are so intertwined and run together it is quite an extra expense to gather them. Should you ever help to gather fruit, as I have just been doing, you will realize the importance of having each kind strictly by itself.

With blackberries he has had a like experience. Clean culture and pruning gave no paying crop; but when he gave them up and let them go he had beautiful berries in abundance. This season he did nothing to the patch but to cut paths for the pickers, with a brush-scythe.

#### PEACH-GROWING IN THE TRAVERSE REGION.

I spoke of a five-acre peach-orchard where the fruit this year had sold for \$500.00. Well, since then we have visited another place where we found the largest, most luscious, and hand-somest fruit I ever saw anywhere. Trees put on new ground, and that have never had any manure of any kind, are just as full of fruit as they can be and not break down. Some of the older trees, where stable manure has been applied, are badly broken by the weight of the fruit; but the owner says they would have held the load safely had it not been for the high wind about the time of the Galveston tornado. He gives his trees clean culture till July. After this the weeds, barn-grass, etc., are allowed to grow. He says he does not want to do any thing to encourage growth in the fall; and the weeds that grow later hold the snow on the ground.

Just below the top of the hill on which Mr. Cole's orchard is located are numerous springs; and Mr. Hilbert thinks there is a clay subsoil that holds the water, forming a sort of natural sub-irrigation, and this is why Mr. Cole gets such wonderful crops without adding to the soil any sort of fertility. Mr. C. showed us peach-trees 35 years old that are still bearing marketable peaches. It is really wonderful, the beautiful peaches we find all about in this region, and many times very fine in spite of neglect and want of care year after year. Mr. Hilbert got the peach fever some years ago, and put out over 2000 trees; but more than half were killed outright, and others greatly damaged by the climbing cut-worm. This worm climbs the tree, and eats off every bud as fast as it starts to grow in the spring. The Michigan Experiment Station said a bunch of wool tied about the trunk would keep the worm from reaching the top; but Mr. H., after putting the wool on his whole 2000, found the worms gathered in the wool at its lower edge and girdled the tree by eating the bark when they couldn't find any thing else to eat more to their liking. The Station afterward discovered this, and added a caution.

#### SWAMP MUCK FOR MULCHING STRAWBERRIES.

Mr. Hilbert says this is the best thing he ever used. He throws it out of the swamp and



draws it on the snow, and spreads it evenly all over the plants. It keeps them out of the dirt, and prevents the soil from getting on the berries. This peculiar muck will not stick to the fruit at all, but I am inclined to think all swamp muck would not answer as well in this respect. The light sandy loam of this region is the ideal soil for strawberry-growing.

#### IMPOSTORS IN HORTICULTURE.

We clip the following from a recent number of the *Ohio Farmer*:

Unfortunately for the amateur the strawberry-plant is dumb or else it would prefer charges of forgery against unscrupulous propagators and introducers, who are with impunity defrauding innocent purchasers out of thousands of dollars every season by attaching new names to old berries of great merit, and disposing of their plants at fabulous prices. In the spring of 1898 the writer received of a leading firm of more than an average reputation for fair dealing six strawberry-plants as a premium, accompanying a small publication devoted to small fruits. This berry was widely advertised as the "Star of first magnitude among all the strawberries." Here are some of the fulsome expressions of the introducer: "Offered us any price we would name for plants." "In productiveness we have never seen its equal." "It matures all its berries in a dry season when all ordinary berries are a complete failure." "A vigorous, strong grower, with healthy, green foliage, with perfect blossom." "For profit we know of no berry that will equal it." "Its superiority was very marked both in size, quality, and productiveness."—Well, we nursed the plants up to the point of becoming "starrageous." Imagine our surprise and chagrin, when the true test, "by their fruit ye shall know them," proved the half-dozen plants bore Sharpless berries which we had been producing for nearly a quarter of a century.

The characterless propagators of frauds of this type, whether in grains, vegetables, or fruits, ought to be given board, lodging, and a job by the State to protect society from their impositions. If all would resolve to purchase no new introduction until it had received the approval of the experiment station (one of their most important services to the farmer) old fruits, etc., could not be palmed off on the people for many times their true value.

I wish to say amen to the above. There are certain seed-venders who make it a point almost every year to introduce some old well-known strawberry, potato, or something else, with a spread-eagle flourish. Even though our experiment stations do (eventually) tell us again and again that the new thing is so much like a well-known variety they can not tell the difference, yet these fellows keep right on. The fact that the variety sent out is a really good one is no excuse—it is a fraud all the same. Our readers may remember we have a potato called the Poor Man's Friend, and it is a very good potato in some respects; but after we had had it for two or three years different people began remarking, "Why, this looks exactly like the old Blue Victor of years ago." And so it is. When I thought I had something new I was fussing with an old well-tried variety, in many places discarded, because, although it is a large yielder, it is poor in quality. As a rule I would advise our readers to beware of any seed catalog that makes a big flourish of being a friend of the poor farmer in the way of "mortgage-lifter" potatoes, "poor man's friend," etc. The dollars that are pictured in such wonderful plenty usually fall into the coffers of the man who asks ten times what the goods are really worth in the open market. By all means, let

our experiment stations decide what is really meritorious and what is not.

#### MAKING CUCUMBER PICKLES; PICKLE-FACTORIES.

Inasmuch as we are in the pickle-factory locality, several inquiries have come on in regard to the way they manage the crop. I wrote the matter up some two years ago. The cucumbers, as they are brought in by the farmers, are emptied into very large tanks, and immediately covered with salt, and afterward water is poured on them, just enough to cover them. I do not suppose it matters much how much salt you put on, so the cucumbers are kept under the brine. The following additional information is from Mr. Greiner in a recent number of the *Farm and Fireside*:

The cucumbers are picked every other day in the morning as the dew is off, and sorted into three sizes from two to seven inches in length, each size packed by itself. If possible, the packing is done in the afternoon of the day they are picked. Barrels may be used. When full the cucumbers are covered with brine of sufficient strength to float a potato. No more salt is to be added. After standing three or four days, to settle, the scum should be removed and each barrel refilled from other barrels containing cucumbers of the same size which had been in brine of like strength. The barrels when headed up and marked are ready for shipment. A forty-gallon barrel will hold from five thousand to six thousand of the smallest size, and from ten hundred to fifteen hundred of the largest. The cucumbers must be cut from the vines with a sharp knife, or better, scissors, leaving on each a bit of stem. Cucumbers put up in this brine will not shrivel and need but little refreshing; but housewives must bear in mind that they will not keep through the second summer without adding more salt.

"PICKLING.—Drain them from the brine, fill any receptacle two-thirds full, pour boiling water over, and let remain twenty-four hours. If too salty (which will depend upon the size) pour off the water, stir thoroughly from the bottom, that they may freshen evenly, and again cover with boiling water. After twelve hours drain, and cover with boiling vinegar; three days later drain, and cover with cold vinegar of full strength sweetened and spiced or not, to suit the taste. I will say, however, that I do not know of any grower around here who ever sold his pickles in any other shape than put up in brine. I am not aware that there is a wholesale market for ready-made pickles; that is, for pickles in vinegar. And even if there were, the average grower, lacking the skill and experience necessary for putting up pickles in vinegar or in any fancy style, would do far better to sell his pickles in the brine."

#### THE LITTLE SPRAYER FOR KEEPING FLIES OFF FROM CATTLE.

I clip the following, from Fred Grundy, in a recent issue of the *Farm and Fireside*:

But for my little tin atomizer, or sprayer, and a good supply of kerosene, I should have a time milking. It is astonishing how quickly a few whiffs of kerosene along the sides and among the legs of a cow will send every fly to the floor or hunting for an opening to get out of the stable. At first the cow does not like to have the kerosene mist sweep over her, but she soon gets used to it; and when the stable door is opened she will make a wild dash for it, to get rid of her tormentors. The kerosene comes out of the sprayer much like smoke, and but very little is required to clear the flies out of a small stable. Sometimes flies will gather on the walls inside the stable by the thousands, apparently waiting for the animals to come in. A few squirts along the walls with the sprayer will kill or drive them out in a hurry. Every one who keeps horses or cows should have one or more of these useful little tools in the stable.



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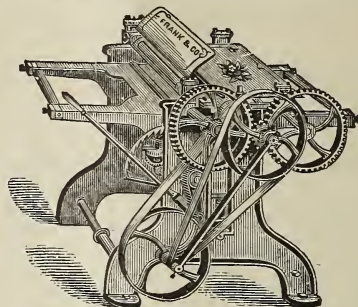
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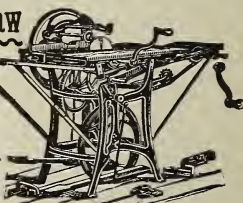
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